NEGLECTED ASPECTS IN AGRICULTURAL POLICIES OF THE INDIAN FIVE YEAR PLANS

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by

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This thesis has been examined and approved by

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PREFACE

The purpose of this study is to describe the present state of Indian agriculture, to analyze the factors retarding its growth and development, to examine its importance in the economy of India, to analyze the agricultural policies and their implementation during the first three Five Year Plans, and to suggest some alternative approaches.

The above aspects of the economics of Indian agriculture are discussed in five Chapters. The content of each Chapter is briefly outlined in the following paragraphs.

The achievements during fifteen years of planning are listed in the First Chapter, with particular attention given to foodgrain production, irrigation and power facilities, trading of agricultural products, agricultural credit, and agricultural education and research. In short, the present conditions of agriculture in India are explained in the First Chapter.

Analysis of factors retarding the growth and development of Indian agriculture is the main task of the Second Chapter. Attention will also be given to the socio-economic factors which affect the agricultural sector.

The Third Chapter deals with the importance of agriculture in the Indian economy which can be expressed by two simple facts: (1) over 65 per cent of the people in India depend on agriculture; and (2) nearly 48 per cent of her national income is derived from the agricultural sector. Moreover, agriculture provides raw materials for India's five major industries, namely, jute, cotton, sugar, oilseeds, and tea. The

agricultural sector also provides export goods, as well as employment for the majority of the population.

The Fourth Chapter mainly provides the statistical information on investment in the first three Five Year Plans, particularly in the agricultural sector. The allocation and utilization of the investment in agriculture is critically assessed.

The Fifth and final Chapter deals with the implications of the foregoing study for future policy.

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CHAPTER I

PRESENT STATE OF AGRICULTURE IN INDIA

In a country like India where nearly every three out of four persons depend on agriculture, the overwhelming importance of agriculture in the national economy of the country cannot be over-emphasized. Yet, in spite of its preponderant importance in India's national economy, agriculture is still depressed. Even after 15 to 20 years of planning and development programs, agriculture remains underdeveloped. The following data show the state of underdevelopment in the agricultural sector.

India's agricultural income and productivity is far behind not only that of developed countries but, also of some of the neighbouring developing countries. For instance, in Pakistan, the arable land per person is 0.26 hectares,[1] while the yield per hectare of arable land is US $164.02. In Ceylon, the corresponding figures are 0.15 hectares and US $416.73. Compared to this, India has 0.35 hectares of arable land per person while the yield per hectare of arable land is only US $90.23. In other words, in Pakistan, the arable land per person is about three-fourths of that of India but the yield per hectare in Pakistan is about 160 per cent greater. Thus, even when India's agricultural situation is compared with the countries which achieved their independence and started development programs with India, we find that

[1] One hectare is equal to 2.471 acres.

India's achievement in the agricultural sector is rather poor.[1]

When it is compared with the more advanced countries the situation would be considerably more disappointing. Israel, for example, has 0.17 hectares of arable land per person; the yield is US $562.50 per hectare. The corresponding figures for the Netherlands are 0.08 hectares and US $1,174.72, and for Japan the figures are 0.06 hectares and US $1,055.28. In other words, in Japan, where only 18 per cent of the land is arable the yield per hectare of arable land is nearly 11 times greater. Although it is true that, to some extent, agricultural productivity depends on natural factors, modern technology has reached a point where the negative influence of natural factors could be minimized by the use of modern techniques.[2] However, one should remember that the countries with which we have compared India do not have more favourable natural factors.

Having a predominantly agricultural economy, India is not producing enough foodgrains to feed her rapidly increasing population. An analysis of the data for the Indian Union during the 30 year period from 1936-37 to 1965-66 reveals striking trends. During the first 15 years, food production declined at the rate of 0.68 per cent per annum, and both the peak and the trough points showed declining trends of 0.54 and 0.50 per cent (average per annum) respectively. During the era of planned development, food production increased at the rate of 2.75 per cent per annum and for some years there were unprecedented

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[1] Dagli, Vadilal, Foundation of Indian Agriculture, Vora & Co., Publishers Pvt. Ltd., Bombay-2, 1968, p. v.

[2] Ibid., p. vi.

rates of growth. However, instability was a differntiating characteristic of this growth.[1]

Serious shortages of vital inputs such as irrigation facilities, fertilizers, new and improved implements contribute to the underdevelopment of agriculture. Before the advent of planning, nearly 19 per cent of cultivated land was provided with irrigation facilities. If all the potential created since then had been utilized, the irrigable area would have risen to 27 per cent of the cultivated area at the end of the Third Plan but there has been a gap between the creation of potential and its actual utilisation. And this gap continued until 1964-65. In other words, as far as the protective role of irrigation in Indian agriculture is concerned, more than 3/4 of the cultivated land remained exposed to the vagaries of rainfall even after 15 to 20 years of planning and development programs.

A) Foodgrains and Other Agricultural Products

Population pressure on cultivated land resources and on the economy as a whole, irregular monsoon and insect plague have kept agricultural production low and have increased the country's dependence on food imports. Historically, famines have been endemic in India, as late as 1951, the second year of the launching of the First Plan, for example, India faced a food shortage of 2 million tons. Planned agricultural reorganization, assisted by favourable climatic factors, made it possible to increase foodgrain production by 11 million tons per annum at the end of the First Plan. As a result of this, near self-

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[1] Ibid., pp. 87-88.

sufficiency prevailed on the food front.[1]

In view of this favourable development during the First Plan, the government and planners believed that the agriculture situation would continue to improve. As a result, greater attention was paid to the development of other sectors in the successive Plans to the comparative neglect of agriculture. However, subsequent developments show that their belief was unfounded. Monsoons were irregular, and crop failures became common throughout the country.

During 1957-58, there was a 10 per cent decline in the production of foodgrains, mainly as a result of drought in many parts of the country. In 1958-59, however, food production was quite large---77.3 million tons or 20 per cent more than in 1957-58. But due to irregular weather conditions and lack of emphasis on agriculture, food production again fell to 76.7 million tons in 1959-60. However, things soon improved and again total food production during 1960-61 stood at 81.9 million tons, (see Table I:1). This Table shows the production trends of foodgrains during the planning period.

We can see that the foodgrain production of 81.04 million tons in 1961-62 showed a reduction over 1960-61. The position was equally bad in the second year of the Third Plan. Foodgrain production during 1962-63 touched the low level of 78.5 million tons. The situation improved during the next two years but again deteriorated appreciably during the last year of the Third Plan, as shown in Table I:1.

Two successive years, 1961-62 and 1962-63, of drought made the

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[1]See Table III:3, Chapter III, which shows the decline in food imports between 1951 and 1955.

TABLE I:1

Production of Foodgrains (in millions of tons)

Year	Production	Year	Production
1	2	1	2
1950-51	50.825	1960-61	81.970
1951-52	51.996	1961-62	81.037
1952-53	59.201	1962-63	78.448
1953-54	69.821	1963-64	80.243
1954-55	68.034	1964-65	88.393
1955-56	66.847	1965-66	73.365
1956-57	69.852	1966-67*	75.137
1957-58	64.311	1967-68**	95.588
1958-59	77.321	1968-69	NA
1959-60	76.672	1969-70***	99.000

Source: Kulkarni, V. G. and D. D. Deshpande, Statistical Outline of Indian Economy, Vora & Co., Publishers Pvt. Ltd., Bombay-2, 1968, p. 28.
Govt. of India, India: A Reference Annual, Publication division, Ministry of Information and Broadcasting, Government of India, 1969, pp. 229-230.

Notes: *Partially revised estimates.
**Final estimates.
***These figures are taken from India News, the Information Service, Embassy of India, Washington, D. C., Vol.X, August 6, 1971.
NA=Not Available.

agricultural scene extremely depressing and many areas faced starvation conditions. In comparison to the average annual rate of growth of 6 per cent expected for agricultural production, the annual growth was only about 2 per cent per annum during the Third Plan. The stagnation of Indian agriculture became a matter of great concern.

It is encouraging to note that recently circumstances have improved somewhat. The foodgrain production in 1967-68 was 95.6 miilion tons. The Green Revolution which the country has witnessed during the last 2-4 years has created a lot of justified optimism in the country's capacity for achieving the goal of producing 129 million tons of foodgrains by the end of the Fourth Plan. The record production of about 99 million tons of foodgrains in 1969-70 showed an increase of roughly 6 per cent over the previous year. This was due to the adoption of the new agricultural strategy. It gives hope that a sustained 5 per cent annual rate of growth would make the country self-sufficient in food in the course of the next few years.[1] The new agricultural strategy has been responsible for the recent boost in farm output. Yet, because of the unfavourable weather conditions, there is no guarantee that this boost will prevail unless continued importance is given to the agricultural sector in the development programs.

Apart from foodgrain production, agriculture also provides raw material needed by the export industries such as cotton, jute and

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[1]Qureshi, M. A., "India's Green Revolution Marches Ahead," India News, The Information Service, Embassy of India, Washington, D. C., August 6, 1971.

sugar.[1] As Table I:2 shows the production of raw fibers (cotton, jute and mesta) during the year 1950-51, 1960-61 and 1964-65 was 6,184, 10,478 and 13,076 thousand bales respectively. The production of oilseeds[2] during the same period was 5,158, 6,624 and 8,584 thousand tons. The production of plantation crops[3] during the years 1950-51, 1960-61 and 1964-65 was 544.8, 736.6 and 906.2 million kgs. respectively and sugarcane production during the same period was 57, 84 and 123 million tons (in terms of gur).

B) Irrigation and Power

The Central Board of Irrigation and Power, established in 1927, is responsible for the initiation of fundamental research in the field of irrigation and power. It co-ordinates the work of 21 research stations established throughout the country. The Central Water and Power Commission (CW & PC) is charged with the responsibility for initiating, co-ordinating and promoting flood control, irrigation, navigation and hydropower generation. It is also responsible for thermal power development and transmission and utilization of electricity.

The Technical Committee, constituted by the Planning Commission on which the CW & PC has representation, is charged with the utilization

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[1]Kulkarni, V.G. and D.D.Deshpande, Statistical Outline of Indian Economy, Vora & Co., Publishers Pvt. Ltd., Bombay-2, 1968, pp. 224-228.

[2]Oilseeds include groundnut, castorseed, sesamum, rape, mustard and linseed.

[3]Plantation crops include tea, coffee, rubber, potatoes, sugarcane, black pepper, chili, ginger, and tobacco.

TABLE I:2

Production Trends of Agricultural Commodities

(other than foodgrains)

Commodities	Unit	1950-51	1955-56	1960-61	1964-65
1	2	3	4	5	6
Raw Fibers:					
Cotton	'000 Bales*	2,875	3,998	5,324	5,408
Jute	" "	3,309	4,198	4,014	6,079
Mesta	" "	NA	1,153	1,140	1,589
Totals	" "	6,184	9,447	10,478	13,076
Oil Seeds:					
Groundnut	'000 Tons	3,481	3,862	4,462	6,176
Castor Seed	" "	103	125	90	101
Rape & Mustard	" "	726	860	1,356	1,375
Sesamum	" "	445	465	321	466
Lin Seed	" "	367	421	395	466
Totals	" "	5,158	5,735	6,624	8,584
Plantation Crops:					
Tea	Million Kg.**	275	285	321	367
Coffee	" "	25	34	43	61
Rubber	" "	14	23	25	46
Potatoes	" "	166	186	275	345
Black Pepper	" "	2	3	3	3
Chili	" "	35	36	37	46
Ginger	" "	2	2	2	2
Tobacco	" "	26	30	31	37
Totals	" "	545	599	737	907
Sugar Cane	Million Tons	57	61	84	123

Source: Kulkarni, V. G. and D. D. Deshpande, Op. Cit., pp. 28-32.

Notes: *One Bale is equal to 396.5 lbs.
**One Kg. is equal to 2.2026 lbs.

and assessment of water resources for major and medium river valley schemes and the co-ordination of the data pertaining to minor irrigation work for domestic and navigational purposes. The ultimate aim is to draw upon the country's resources and to utilize them fully for increased benefits in the country.

The total water potential of India by way of mean annual river-flows is estimated at 1,675 billion cu. mters. Of this amount, it is estimated that approximately 555 billion cu. meters could be utilized. By 1951, only about 93 billion cu. meters was being used in irrigation projects, which is 17 per cent of the estimated useable resources or 5.6 per cent of the total annual flow. By the end of the Third Plan the major, medium and minor projects permitted utilization of nearly 193 cu. meters of water, which is approximately 36 per cent of the total useable resource.

As Table I:3 shows, in 1950-51, the area under irrigation was 51,523,763 acres. By 1960-61, it increased to 60,870,614 acres and by the end of the Third Plan it reached 65,335,711 acres.[1] This was an increase of 26.8 per cent during a period of 15 years. The particulars of the principal irrigation projects, both those completed up to the end of the Third Plan and those which will continue after the Third Plan, are given in Table I:4.

By the end of the Third Plan the Central Board of Irrigation and Power had completed 80[2] projects, of which 13 were completed before

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[1]These figures include minor, medium and major irrigation.

[2]This figure does not include the 10 projects that were completed before the Board was established.

TABLE I:3

Progress in Irrigation : Source-wise

Source	1950-51	1955-56	1960-61	1965-66
1	2	3	4	5
	in acres			
Govt. Canals	17,687,418	19,829,775	22,617,063	24,282,517
Pvt. Canals	2,809,523	3,360,560	2,965,200	2,799,643
Tanks	8,927,723	10,929,233	11,255,405	10,973,711
Wells	14,771,638	16,653,069	17,998,764	20,867,595
Other Sources	7,331,457	5,226,165	6,019,356	6,412,245
Total Net Irrigated area	51,527,763	56,235,018	60,870,614	65,335,711
Gross Irrigated area	55,753,173	63,361,382	69,042,211	76,408,262
Area Irrigated more than once	4,225,410	7,126,364	8,171,597	8,601,551

Source: Agrawal, G. D. and P. C. Bansil, Economic Problems of Indian Agriculture, Vikas Publications, Delhi-6, 1969, p. 51.

TABLE I:4

Principal Irrigation Projects

(Aggregated Under the Head of Province)

Province/State	Completed by the End of the Third Plan		Continuing After the Third Plan	
	Estimated Total Cost (in millions of Rs.)	Area Irrigated (in millions of acres)	Estimated Cost (in millions of Rs.)	Ultimate Benefits (millions of acres)
1	2	3	4	5
Andhra Pradesh	345.13	1,909.6	2,434.9	2,970.9
Assam*			39.6	84.2
Bihar	306.90	1,493.1	2,238.4	5,804.5
Gujarat	131.36	190.2	2,687.0	2,646.5
Haryana**			298.3	1,386.2
Kerala	131.35	271.1	354.3	522.3
Madhya Pradesh	44.57	291.9	943.0	1,614.2
Maharashtra	268.64	448.9	2,480.4	2,290.8
Mysore	177.16	202.7	2,868.7	2,393.9
Orrisa	683.73	711.2	474.2	1,791.3
Punjab	1,350.11***	6,454.3***	291.3	1,840.8
Rajasthan	48.10	73.0	2,103.0	2,077.4
Tamil Nadu	445.95	861.2	452.0	287.0
Uttar Pradesh	674.61	6,276.2	1,631.9	4,089.4
West Bengal	12.41	200.0	1,084.6	2,461.0
Jammu & Kashmir@	7.59	22.4	-------	-------

Source: India: A Reference Annual, Op. Cit., 1969, pp. 295-299.

Notes: *Expenditure was not made before the Third Plan.
**Haryana separated from Punjab after the Third Plan.
***Combined figure for Pujab and Haryana, before partition.
@Investment was not made after the Third Plan.

This is not an exhaustive list, but it contains selected projects whose estimated cost is Rs.8 million or above and, are aggregated for different provinces/states rather than for individual projects.

Planning. Besides this, at present, 69 projects are already in progress. Some of them are expected to be completed by the end of 1972, with others expected to reach completion by the end of the Fourth Plan.

Progress in power generation by public utilities was very slow up to the mid-twenties. The aggregate installed capacity in 1925 was only 162,341 kw. By 1945 it had increased more than five-fold to 900,402 kw. The installed capacity for power plants in March, 1966 was 9,027,019 kw. This was an increase of nearly 392 per cent over 1951. During the same period, electricity generation increased from 5,858.4 million kwh. to 32,990 million kwh., amounting to an increase of about 463 per cent.

The growth in steam, diesel, and hydro plant capacity during the planning period was 302, 116 and 617 per cent respectively. The total installed capacity in 1950 was 2.3 million kw., which increased to 10.17 million kw. by the end of the Third Plan. The progress of electricity supply in India during the period from 1939 to 1967, in terms of actual figures for selected years is shown in Table I:5.

C) Agricultural Credit

An integrated program of co-operative development was first drawn up in the Second Plan.[1] The movement, which at the outset was virtually restricted to the provision of credit, was eventually extended to encompass other spheres of economic activity, such as marketing, processing, warehousing and storage. In November, 1958, the National Development Council resolved that co-operatives should be organized on the basis of

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[1]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1962, especially Chapter 22.

TABLE I:5

Progress of Electricity Supply

Year	Total Installed Capacity of Generating Plants (mw)	Aggregate of Maximum Demand in the Year (mw)	Energy Generated (in billions of kwh.)	Energy sold (in billions of kwh.)
1	2	3	4	5
1939	1.070	576	2.44	203
1947	1,363	883	7.07	336
1951	1,835	1,205	5.86	479
1956	2,886	1,990	9.66	496
1961	4,653	3,546	16.94	1,395
1962	5,219	3,971	19.67	1,645
1963	5,801	4,635	22.36	1,868
1964	6,576	5,549	26.82	2,179
1965	7,327	6,257	29.59	2,422
1966	9,027	7,306	32.99	2,673
1967	10,190	8,292	36.38	2,913

Source: India: A Reference Annual, Op. Cit., 1969, p. 285.

Notes: Column-2 includes electricity generation from Steam, Diesel and Hydro Plants.

the village community as the primary unit and that responsibility and initiative for social and economic development at the village level should be placed fully on the village co-operatives and the village Panchayats[1] with the main aim of providing financial assistance to the poor farmers.

In order to provide financial assistance to the farmers, the government of India revitalized the existing agricultural credit societies and land development banks and encouraged the growth of new ones in the co-operative sector. Table I:6 shows the average membership, share capital, deposits and working capital of agricultural credit societies for selected years between 1951-52 and 1966-67.[2]

Grain Banks

At the end of June, 1966, there were 6,847 Grain Banks in India with a membership of 911,000 and a working capital of Rs.59.2 million. Orissa State had the highest number of Grain Banks, 814 as of June, 1967. Loans advanced by all Grain Banks in the country during 1966-67 amounted to Rs.20 million. The main aim of the Grain Banks is to provide financial assistance to farmers on credit, with the crop as security.

Primary Land Development Banks (PLDBs)

At the end of June, 1967, there were 707 Primary Land Development Banks in the country, with a membership of 1,255,000 and a working capital of Rs.1,547 million. The main aim of these Banks is to provide

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[1]Local (village) government.

[2]India: A Reference Annual, 1962, Op. Cit., pp. 268-269.

TABLE I:6

Progress in the Agricultural Credit Societies

During the Planning Period

Particulars	1951-52	1961-62	1965-66	1966-67
1	2	3	4	5
Membership per society	44	91	136	149
	in Rs.			
Share capital per society	827	3,190	6,009	7.195
Share capital per member	19	35	44	48
Deposits per member	9	9	13	15
Deposits per society	408	820	1,797	2,187
Working capital per society	4,190	15,126	28,481	34.980

Source: India: A Reference Annual, 1969, p. 270.

money to the farmers for land development purposes only. Table I:7 indicates the progress made by Primary Land Development Banks between 1951-52 and 1966-67.

Central Land Development Banks (CLDBs)[1]

Central Land Development Banks are the pivot of the structure of long term finance to agriculturalists. The Central Land Development Banks raise their funds mainly by issuing debentures which are guaranteed by the State Governments. There were 19 Central Land Development Banks in India at the end of June 1967 with a working capital of Rs.2,636 million. Table I:8 shows the progress made by these Banks between 1951-52 and 1966-67.

D) Agricultural Education, Research and New Techniques

There are nine agricultural universities in India. Four more universities will be set up during the Fourth Plan. These universities provide professional training in agriculture. The training and education of the farmers are attempted through demonstrations organized by agricultural scientists through the diffusion of agricultural information, and the establishment of farmer' discussion groups.

The Indian Council of Agricultural Research is the central organization for research in agriculture. In addition, minor agricultural research and training programs are also conducted by the co-operative farming societies and the community development agencies.

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[1]The difference between CLDB and PLDB is that the one bank has control over the other banks. In other words, CLDBs are at the Central level, acting as the Head Office of all other PLBDs which are existing in different States.

TABLE I:7

Progress in the Primary Land Development Banks

During the Planning Period

Particulars	1951-52	1961-62	1965-66	1966-67
1	2	3	4	5
	in millions of Rs.			
Share Capital	5.8	28.3	111.8	141.4
Reserve fund	1.3	3.9	8.8	10.7
Other fund	0.5	2.3	6.7	7.9
Debentures and other borrowings (including deposits)	68.4	348.7	1,198.4	1,576.0
Working capital	76.0	383.1	1,369.3	1,735.9
Loans advanced	13.0	125.9	412.3	408.4
Loans repaid	4.8	21.9	99.9	107.3
Loans due	69.6	352.8	1,243.3	1,546.7

Source: India: A Reference Annual, 1969, p. 271.

TABLE I:8

Progress in the Central Land Development Banks

During the Planning Period

Particulars	1951-52	1961-62	1965-66	1966-67
1	2	3	4	5
Number of Banks	6	17	18	19
Membership	34,579	299,383	402,934	772,526
	in millions of Rs.			
Share Capital	4.4	57.3	153.9	189.3
Reserve Fund	2.5	7.4	15.7	19.2
Other Funds	1.2	5.6	10.8	16.1
Debentures	78.3	477.4	1,783.7	2,320.3
Borrowings (including deposits)	15.3	54.6	72.6	90.9
Working Capital	101.7	617.0	20,065.9	20,635.8
Sinking Fund Investments	12.7	109.2	380.7	494.1
Investments (including cash and bank balances)	7.7	36.2	90.6	120.6
Loans Advanced	25.1	147.5	564.1	588.5
Loans Recovered	4.4	39.3	110.0	160.1
Loans Due	80.5	479.0	1,632.6	2,073.7

Source: India: A Reference Annual, 1969, p. 271.

In the period beginning with the Third Plan, a number of steps have been taken for development of new and improved agricultural machinery. The Central Government has already set up a Board for Agricultural Machinery and Implements. At the State level, special agricultural machinery departments have been created to provide proper guidance and assistance to the farmers in the use of such machinery.

The demand for agricultural machinery is increasing very rapidly. For example, the demand for tractors is now estimated at over 70,000 per annum. It is estimated that by 1973-74 the annual demand will be in the vicinity of 90,000. In order to meet this requirement, Agro Industries Corporations have been set up in twelve States. The Fourth Plan provides for the establishment of such corporations in the remaining States. These corporations supply agricultural machinery and implements on a hire-purchase basis and also provide technical and other services which necessarily go with such supply.

E) Present Agricultural Policy

This section mainly deals with the present agricultural policy which is being implemented in the Fourth Plan. As the Planning Commission points out, the Fourth Plan has two main objectives in the agricultural sector. They are: "(1) to provide the conditions necessary for a sustained increase of about 5 per cent per annum over the next decade; and (2) to enable as large a section of the rural population as possible, including the small cultivator, the farmer in dry areas and the agricultural labourer, to participate in development and share its benefits."[1]

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[1] Planning Commission, Fourth Five Year Plan: 1969-74, Publication Branch, Government of India Press, New Delhi, February 1969, p. 120.

The development of the agricultural sector is the main task of the Fourth Five Year Plan. The Plan recognizes that the pace of development in the agricultural sector sets a limit to the growth of industry, of exports, and of the economy as a whole. The growth of the economy constitutes a major condition for economic and social stability and for improving the standard of living and nutrition for the mass of the people. The success of the Fourth Plan, therefore, will be judged by the performance in agriculture.

Targets and Strategy of the Plan

The specific targets of production determined in the context of the over all objectives of agricultural development have to be related to the demand likely to be generated by the projected growth of per capita income and consumption as well as the expected growth of population. An important consideration in determining the targets is the objective of eliminating imports of foodgrains as soon as possible. Some selected targets for foodgrains and major commercial crops are as follows: (1) foodgrain production by 1974 will be 129 million tons per annum; (2) oilseeds, 10.5 million tons; (3) sugarcane (in terms of gur), 15 million tons; (4) jute, 7.4 million baïes; and (5) cotton, 8 million bales.[1]

The strategy of agricultural production places very little emphasis on bringing additional land under cultivation. The potentially arable area in the country is estimated at about 432.4 million acres. Of this, nearly 85 per cent is under cultivation. Thus, there is virtual exhaustion of uncommitted land resources. In the Fourth Plan, it is antici-

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[1] Ibid., pp. 120-121.

pated that the net addition to the area will be only about 2.47 million acres, which is the target of land reclamation. In this context, the strategy of production is primarily dependent on intensive agriculture and consists of the following main elements: (1) co-ordinated research in respect of all important crops; (2) continued expansion and optimum use of irrigation facilities through special programs; (3) raising the yield level of commercial crops; (4) expansion in the supply of fertilizers, plant protection material, farm machinery and credit; (5) provision for better seeds; and (6) improvement in the agricultural marketing system in the interest of the producer with assurance of minimum prices.[1]

Financial Outlays

Table I:9 shows the public sector and private outlays for the Fourth Five Year Plan. Out of an aggregate outlay of Rs.248.82 billion, Rs. 43.23 billion (17.4 per cent) is allocated for agriculture and allied fields,such as community development program. Irrigation and flood control receive Rs.10.87 billion (4.4 per cent), allocation for power development amounts to Rs.25.23 billion (10.1 per cent), and Rs.53.38 billion (21.4 per cent) is allocated for industry and minerals.[2]

It is expected that investment in agriculture will be provided by other sources, both institutional and private. On the institutional side, it is expected that the operation of land development banks will be considerably expanded. A similar expansion is envisaged for the

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[1] Ibid., p. 122.

[2] Ibid., p. 123.

TABLE I:9

Outlay in the Fourth Five Year Plan

Major Heads of Development	Public Sector		Private Sector		Public & Pvt.Sectors	
	Outlay	% of Outlay	Outlay	% of Outlay	Total Outlay	% of Total Outlay
1	2	3	4	5	6	7
	in billions of Rs. and its percentage in the appropriate sector					
Agriculture and allied fields	27.28	17.1	16.00	17.8	43.23	17.4
Irrigation and flood control	10.87	6.8	-----	----	10.87	4.4
Power	24.48	15.4	0.75	0.8	25.23	10.1
Village and small industries	2.91	1.8	5.60	6.2	8.53	3.4
Industry and minerals	33.38	21.0	20.00	22.3	53.38	21.4
Transport and communication	32.33	20.3	9.20	10.2	41.57	16.7
Education	8.23	5.2	0.50	0.6	8.73	3.5
Scientific research	1.40	0.9	-----	----	1.40	0.6
Health	4.35	2.7	-----	----	4.35	1.7
Family planning	3.15	2.0	-----	----	3.15	1.3
Water supply and sanitation	4.06	2.6	-----	----	4.06	1.6

TABLE I:9 (Cont.)

1	2	3	4	5	6	7
Housing, urban and regional development	2.37	1.5	21.75	24.3	24.12	9.7
Welfare and backward classes	1.42	0.9	-----	----	1.42	0.6
Social welfare	0.41	0.3	-----	----	0.41	0.2
Labour welfare and craftsmen training	0.40	0.3	-----	----	0.40	0.2
Other programs	1.92	1.2	-----	----	1.92	0.8
Inventories	-----	----	16.00	17.8	16.00	6.4
Totals	159.02	100.0	89.80	100.0	248.82	100.0

Source: Planning Commission, Fourth Five Year Plan: 1969-74, Publication Branch, Government of India Pres, New Delhi, 1969, p. 52.

Agricultural Refinance Corporation and the Agro Industries Corporation. In addition, agricultural credit corporations are proposed to be set up in States where co-operative credit agencies are weak. It is expected that a new credit guarantee corporation will come into operation to facilitate the flow of finances for distribution of fertilizers and allied inputs. Commercial banks are expected to cater increasingly to the agricultural sector and provide finance both for investment and production. As Table I;9 indicates, the private sector is expected to contribute Rs.16 billion to the agricultural sector in the Fourth Five Year Plan.

CHAPTER II

FACTORS RETARDING THE DEVELOPMENT OF AGRICULTURE

It has been indicated in Chapter I that after fifteen to twenty years of planning and development programs, agriculture in India is still underdeveloped. Now, it is appropriate to examine the factors that have retarded the development of agriculture.

It would be realistic to state that the economic development of a country should be so concerned as to take into account its unique social, cultural and natural circumstances. A mere imitation of the development strategies of other countries is not going to help to solve the serious problems the country faces. Because of the undue pre-occupation with the industrial development strategies on the model of other countries such as the Soviet Union, the Indian Plans have neglected agricultural development, which alone can bring about rapid growth of the economy as a whole. Consequent slow growth of the economy and retarded conditions in agriculture can be primarily attributed to the unrealistic policies of the government and the planners.

A) Nature Dependent Agriculture

The main problem with Indian agriculture is that it depends very heavily on nature, especially on rainfall. That is why it is often said that Indian agriculture is a gamble with nature. Consequently, some economists and the government argue that the main reason for the failure of the agricultural sector in the field of foodgrain production, during the Second and Third Plan period, was the climatic conditions.

B) Traditional Method of Cultivation

In this fast-growing technological age, most Indian farmers are still attached to the traditional methods of cultivation. They still use the same of old wooden or iron plough, bullock-cart and other traditional implements. There are a number of reasons for this, for example, lack of education, poverty among farmers, and non-availability of new and improved implements---the latter being the most important.[1] Moreover, absence of double-cropping and the lack of effective crop rotation methods have contributed to the low level of agricultural production.

C) Increasing Population in Agriculture

The fast-growing population is another problem which affects economic development, particularly in the agricultural sector. A high rate of population growth creates many problems, such as unemployment and food shortages. It also affects modernization of farming by creating sub-division and fragmentation of farms, making the size of farms so small that sometimes it is very difficult to employ even the existing crude implements fully and economically.

In the pre-planning period, measures were taken for the protection of industrial labour, but little attention was given to the improvement of the economic condition of agricultural labour. The phenomena of disguised unemployment, underemployment and surplus population are all simultaneously manifested in the daily life of the agricultural community. The agricultural labour force receives low wages, suffers from unfavourable

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[1] For more detail, see Section-G of this Chapter.

working conditions and is subject to irregular employment.

The unemployment existing in Indian agriculture is of two kinds: (a) disguised unemployment and (b) seasonal unemployment. A three-month field investigation in 1954-55 was conducted by N. A. Mujumdar in nine selected villages of the Bombay-Karnatak Region to measure the degree of disguised unemployment in agriculture.[1] The author interviewed village officers and studied village records to determine the population, land use, occupation, number of livestock, labour movements, work schedule, and standard cultivated holdings in each village. Also, twenty-five families in each village were interviewed to determine family size, occupation, source of income, size of holdings, and annual work schedule.

The author uses the standard cultivated holding as his most important unit in estimating underemployment. He defines it as "the area of land which is sufficient to absorb, in given conditions of techniques and type of farming, the labour of an average farm family working with a pair of bullocks."[2] Unfortunately, Mujumdar does not tell us what is the standard holding. He simply states:

> "When once the standard holding is defined for a village or area, the intensity of employment can be measured against the standard so determined, the ideal case being that of full employment when the cultivated holding is of the size of the standard unit or above. All other cases come under disguised unemployment."[3]

Mujumdar found, in his nine-village study of small farms, that roughly

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[1] Mujumdar, N. A., Some Problems of Underdevelopment, Popular Book Depot, Bombay, 1961.

[2] Ibid., pp. 83-84.

[3] Ibid., p. 202.

about 71 per cent of the farmers are affected by disguised unemployment.[1] Thus, this figure, in spite of all the limitations, presents in concrete terms the alarming proportions which the phenomena of disguised unemployment has assumed.[2]

Mujumdar's definition of disguised unemployment classifies any worker on a farm of less than the standard holding as unemployed; he sees no need to estimate his productivity in the group. Using the standard holding rather than the marginal productivity techniques, Mujumdar arrives at the dubious conclusion that more than 70 per cent of the agricultural population could be removed from the region without lowering production.

D) Factors Inhibiting Technological Change and Mechanization in Indian agriculture

Technological change and mechanization in agriculture consists of adoption of new and improved farming techniques, developed through research, which are calculated to bring about diversification, increase in production, and greater economic returns to the farmers. Use of fertilizers, pesticides, improved seeds, machines and implements, and contour bunding for conservation of moisture and soil are are examples of such change.

Speedy and extensive introduction of new technology is now recognized as the crucial factor in India's agricultural development. It is not yet fully realized, however, that such a change must bring a

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[1] Ibid., p. 208.

[2] Ibid., p. 208.

substantial and assured gain in order to induce the tradition-bound farmers, who are accustomed to working with a narrow margin and are not prepared to risk these margins for small gain, to accept new technology. This means that critical studies on the economic, social, and institutional implications of technological change are essential in recommending new practices to farmers. Those factors affecting technological change and mechanization in Indian agriculture are analyzed here.

Size of the Farm

Many economists argue that the main problem of technological change and mechanization in Indian agriculture is the size of the farm. In other words, where farms are very small, e.g., 0.57 acres,[1] it is often impossible to use modern machinery.

If we look at the facts and figures relating to the size of the farm, we find that hearly 310 million acres of land was estimated as being owned by rural households in 1954-55.[2] This is nearly 38.4 per cent of the total geographical area of 61 per cent of the useable topographical land,[3] owned by approximately 66 million small households (including

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[1]This example is taken from the author's own community (village: Taraktalav, Dist. Amreli, Gujarat State, India). There are a number of other farmers, in and around that community, whose farms range in size from one acre to four acres.

[2]National Sample Survey (NSS), Report No. 10, p.10.

[3]It is estimated that the total geographical area is 806.27 million acres (Indian Agricultural Statistics, Vol.I, 1954-55, Ministry of Food and Agriculture, New Delhi, 1956, Note I), and total useable topographical area, 504.4 million ares (Census of India: 1951, Vol.I, Pt. IA, p. 8). The estimated useable geographical area is based on the total estimated geographical area of 812.6 million acres, which has since been revised as 806.27 acres.

landless).[1] The redeeming factor, however, is that nearly 79.8 per cent of rural households are agricultural.[2] The average size of ownership holdings in the rural areas is only about 4.72 acres. When we look at the size distribution of holdings, the farm situation is found to be even worse,[3] which can be seen in Table II:1.

Use of Fertilizers and Size of the Farm: The use of modern fertilizers also depends on the size of the farm because if a farmer has a large farm, he can then introduce better machines on the farm and provide more water. Thus, he will be able to produce more, will earn more money and will be able to buy more fertilizers. A break-down of the area fertilized according to the size of farms is given in Table II:2. Here it is shown that farmers with larger farms use chemical fertilizers more extensively than those having small farms.

Improved Agricultural Implements and Size of the Farm: The iron plough is the only implement which has been accepted by Indian farmers on a considerable scale. Here too, farmers with large farms have adopted the iron plough to a greater extent. This can be seen from Table II:3.

Another interesting finding incorporated into Table II:3 is that in each size of holding, farmers who use fertilizers also use the iron plough to a greater extent than others who do not use fertilizers. A

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[1] National Sample Survey (NSS), Report 10, p. iv.

[2] India: A Reference Annual, Op. Cit., 1954, p. 53.

[3] The size of holdings is getting smaller and smaller as time passes because of sub-division and fragmentation due to the joint family system and other social customs, such as the Law of Inheritance.

TABLE II:1

Distribution of Ownership Households

According to the Different Size Groups*

Size Groups	Households		Area		Average Size per Holding
	in Millions of Number	% of Total	Actual (in Millions of Acres)	% of Total	
1	2	3	4	5	6
0.00 to 0.009**	14.444	22.0	----	----	-----
0.01 to 0.99	16.346	24.9	4.275	1.4	0.26
1.00 to 2.49	9.104	13.9	15.277	4.9	1.68
2.50 to 4.99	8.975	13.7	32.404	10.5	3.61
5.00 to 9.99	8.453	12.9	59.550	19.2	7.04
10.00 to 24.99	6.045	9.2	92.132	29.7	15.24
25.00 to 49.00	1.735	2.6	59.881	18.7	33.36
50.00 & above	0.553	0.8	48.331	15.6	87.40
Totals	65.659	100.0	309.850	100.0	4.72

Source: John, P. V., Some Aspects of the Structure of India Agricultural Economy, Asia Publication House, New York, 1968, p. 91.

Notes: *National Sample Survey (NSS), Report No. 10, Cabinet Secretariate, Government of India, New Delhi, 1958, p. 47.

**Households, owning no land or less than 0.009 acres are shown against this size groups level.

TABLE II:2

Percentage Area Benefited by Nitrogenous and Phosphatic Fertilizers for Various Size-Groups of Holdings

District	Crop	Percentage Area Benefited by							
		Nitrogenous fertilizers (as A/S or equivalent)				Phosphatic fertilizers (as single superphosphate)			
		Less than 2 hectares	2-4 hectares	Above 4 hectares	Pooled over all holdings	Less than 2 hectares	2-4 hectares	Above 4 hectares	Pooled over all holdings
1	2	3	4	5	6	7	8	9	10
Thanjavur (1963-64)	Rice (*Kuruvai*) ..	53	51	65	56	19	33	33	27
	Rice (*Samba*) ..	43	45	62	50	37	47	61	48
	Rice (*Thaladi*) ..	64	63	74	66	15	36	53	28
West Godavari (1963-64)	Rice (1st crop) ..	47	49	59	56	8	14	19	17
	Rice (2nd crop) ..	88	87	83	84	30	46	56	51
Shahabad (1963-64)	Rice ..	37	53	66	59	16	28	41	34
	Wheat ..	23	31	39	34	15	19	29	25
Raipur (1963-64)	Rice ..	9	20	31	24	4	14	21	16
Aligarh (1963-64)	Maize ..	23	24	33	27	0	2	2	1
	Wheat ..	13	34	61	42	0	3	6	4
Ludhiana (1963-64)	Maize ..	—	47	60	59	—	9	23	22
	Wheat ..	—	71	80	81	—	23	51	51
Pali (1963-64)	Maize ..	—	20	4	8	—	0	2	2
	Wheat ..	—	3	4	4	—	2	*	1
Mandya (1963-64)	Rice ..	73	63	74	70	67	59	67	64
	Ragi ..	16	7	10	9	14	6	9	8
	Sugarcane ..	77	79	64	68	75	72	59	62
Surat (1962-63)	Rice ..	—	19	14	16	—	10	2	4
	Jowar ..	—	4	3	3	—	1	1	1
	Cotton ..	—	4	8	7	—	0	1	1
Sambalpur (1962-63)	Rice (Autumn) ..	2	1	2	2	2	1	1	1
	Rice (Winter) ..	3	1	4	3	2	1	3	3
Alleppey (1962-63)	Rice (1st crop) ..	6	8	4	6	3	9	4	5
	Rice (2nd crop) ..	5	13	18	12	1	11	19	9
	Rice (3rd crop) ..	16	27	38	31	3	20	30	23
Palghat (1962-63)	Rice (1st crop) ..	6	25	33	27	0	0	4	2
	Rice (2nd crop) ..	9	29	54	41	1	1	7	5
Bhandara (1962-63)	Rice ..	13	14	22	18	2	5	14	9
Coimbatore (1961-62)	Rice ..	54	50	57	54	—	—	—	—
Barabanki (1962-63)	Rice ..	51	62	46	54	—	—	—	—
	Wheat ..	26	33	24	29	—	—	—	—
Krishna (1961-62)	Rice ..	57	64	70	53	66	60	63	64
Meerut (1959-60)	Wheat ..	7	8	10	8	—	—	—	—
	Sugarcane ..	26	46	45	41	—	—	—	—
Varanasi (1961-62)	Rice ..	22	32	56	32	—	—	—	—

Source: Panse, V. G. and D. D. Deshpande, Op. Cit., p. 24.

TABLE II:3

Percentage of Users and Non-Users of Fertilizers

Having Iron Plough

District	Year	Users/ Non-Users/ Overall.	Size of Holding (in hectares) 0.00 to 1.99	2.00 to 3.99	4.00 & Above	Overall
1	3	2	4	5	6	6
Barabanki	1956-57	Users	1	6	31	5
		Non-Users	-	3	22	2
		Overall	1	6	28	4
Ferozepur	1957-58	Users	80	80	93	91
		Non-Users	65	77	88	85
		Overall	67	78	89	87
Meerut	1959-60	Users	22	21	35	27
		Non-Users	3	8	13	7
		Overall	8	14	26	16
Varansi	1961-62	Users	6	7	17	8
		Non-Users	2	3	19	3
		Overall	3	4	18	5
Coimbtore	1961-62	Users	10	15	22	14
		Non-Users	1	2	10	4
		Overall	6	8	15	9

Source: Panse, V. G. and D. D. Deshpande, Op. Cit., p. 130.

similar result was found in relation to pumping sets for lift-irrigation in the Coimbtore District (Southern India) where such irrigation is practised on a considerable scale. See Table II:4.

Lack of Irrigation

The use of fertilizers and modern implements in agriculture is also dependent upon the availability of an adequate moisture supply in the soil, either through ample rainfall or irrigation. The use of fertilizers is especially closely connected with irrigation facilities. Because of this limitation, the use of fertilizers is more widespread with crops such as rice and sugarcane, which are grown when there is adequate rainfall or sufficient irrigation. According to a research project conducted by the Institute of Agricultural Research Statistics, New Delhi, in 1962, irrigated wheat responds to fertilizers even more profitably than rice; therefore, it is important that farmers growing irrigated wheat should be induced to use fertilizers on a much greater scale.[1]

This project again pointed out that a possible reason why farmers did not use fertilizers was the lack of irrigation facilities. The comparison of Group A and Group B, with respect to irrigation facilities and the use of fertilizers, is shown in Table II:5. This Table shows that the average percentage of irrigation facilities in Group A is 50.37 per cent and in Group B it is 66.26 per cent. These figures are from a sample study and, therefore, it may be possible that this

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[1]Panse, V. G. and D. Singh,"Promotion and Assessment of Technological Change in Indian Agriculture," Indian Journal of Agricultural Economics, Vol.XXI, No.1, 1966, p. 4.

TABLE II:4

Percentage of Users and Non-Users of Fertilizers

Having Pump Sets

District	Year	Users/ Non-Users/ Overall	Holding-Size (in hectare)			
			0.00 to 1.99	2.00 to 3.99	4.00 & above	Over-all
1	2	3	4	5	6	7
Coimbtore	1961-62	Users	17	38	46	30
		Non-Users	6	11	23	15
		Overall	12	24	35	22

Source: Pnanse V. G. and D. Singh, Op. Cit., p. 130.

TABLE II:5

Irrigation Facilities and the Use of Fertilizers

Sr. No.	Total Area (in Acres)	Irrigated Area (in Acres)	% of Irri-gation
1	2	3	4
	GROUP A		
1	95	12	12.63
2	75	--	-----
3	25	14.6	58.40
4	40	18	45.00
5	30	26	86.67
6	27	21	77.78
7	27	5	18.51
8	11	9	81.82
9	8	5.4	67.50
10	16	10	62.50
11	25	7	28.00
12	35	18	51.43
13	8	7	87.50
14	12	4	33.33
15	8	8	100.00
16	11.6	10	86.20
17	9	9	100.00
18	6.4	2	31.25
19	7	1	14.28
20	2	0.2	10.00
21	7	0.2	5.00
Totals	482		1,057.80
Average	22.95		50.37

TABLE II:5 (Cont.)

1	2	3	4
	GROUP B		
1	14	10	71.43
2	16	16	100.00
3	35	25.8	73.71
4	11	11	100.00
5	30	10	33.33
6	6	4.6	76.67
7	54	54	100.00
8	2.4	2.4	100.00
9	7	3.2	45.71
10	10.4	6.0	57.69
11	5.4	3	55.56
12	8.2	1	12.19
13	2	0.8	40.00
14	7.6	0.8	1033
15	4.8	4	83.33
16	2.4	2.4	100.00
Totals	167.6		1,060.15
Average	10.47		66.26

Source: Desai, D. K. and B. M. Sharma,"Technological Cgange and Rate Diffusion," Indian Journal of Agricultural Economics, Vol.XXI, No.1, 1966, p. 146.

Notes: The value of t is (-1.54), whic' is not significant at 5 per cent level of significance.
The measurement of irrigated area in Column-3, Group-B is in Bighas. One Bigha is equal to 0.875 acres.

area is more developed and more irrigated than other parts of the country.

Poverty Among the Farmers

It is commonly said that the Indian farmer is born in debt, lives in debt and dies in debt. Thus, the Indian farmer is very poor and, therefore, he cannot afford to employ technology extensively on his farm. This simple truth can be seen from the following example from Table II:6.

This example is taken from a Master's Thesis by Mr. Tadiboyina Venkateswarlu, who has done the case study of Emani Block in Southern India.[1] This study maintains that:

> "The questions were asked to elicit reasons for low level of fertilizer application, and 81 per cent of families in the region expressed dissatisfaction over the adequacy of fertilizer supply. The main reasons for the low amount of fertilizer application were non-availability of adequate supplies at the right time, and the lack of purchasing power with the farmers, particularly small cultivators."[2]

In addition, rapacious and oppressive land-tenure, such as the Zamindary system,[3] enriched the landlords and increased the misery of the tenant farmers. In most cases, less than 1/5 of the net income of cultivation was enjoyed by the actual cultivator and the rest went to the non-working owner of the land. Thus, absentee landlordism and

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[1]An intensive field study of one of the 19 villages in Emani Block (South India) was carried out in September, 1966 by Mr. Tadiboyina Venkateswarlu, a Graduate Student of Economics Department, University of Alberta, Alberta, Canada.

[2]Venkateswarlu, T., Agriculture in Indian Economic Planning, Master's Thesis, Department of Economics, University of Alberta, Alberta, Canada, 1967, p. 49.

[3]Zamindar means Landlord. Zamindary System refers to that type of cultivation system in which the Landlord gives his land to the farmer for cultivation on a commission basis.

TABLE II:6

Obstacles in the Use of Fertilizers

in the Duggirala Region*

Obstacles	Size of the Farm		
	1 to 10 acres	10 to 25 acres	Above 25 acres
1	2	3	4
	% of total families in the region		
Supply not available	11.9	25.5	66.7
Could not afford to buy	66.7	57.5	20.8
Others 21	21.4	15.0	12.5
Totals	100.0	100.0	100.0

Source: Venkateswarlu, Tadiboyina, Agriculture in Indian Planning, Master's Thesis, The University of Alberta, Alberta, 1967, p. 49.

economic serfdom of tenants were also responsible for backwardness in the agricultural sector. Even though various levels of government have passed the legislation to abolish the Zamindary System, it has not been possible to implement the legislation effectively due to lack of political courage on the part of the political executives.

Lack of Education

According to the 1961 Census, 24 per cent of the total population was literate. The latest estimate of 1969 places literacy at 34 per cent, which is still very low in comparison with the developed countries. However, these figures give a general idea of the extent literacy. When it is realized that most of the educated people are not in agriculture, the situation in agriculture becomes worse. Official figures are not available but it is estimated that hardly 3 to 5 per cent of all farmers are educated, i.e. are able to read and write. Thus, most of the farmers are uneducated in India, and therefore, they are unable to make use of new technology because it is important to know how to operate and use new machines before putting them on the farm.

C. R. Wharton states that

> "A key element in the process of agricultural development is the human factor----the capacity, ability, and willingness to change on the part of millions of small farmers around the world. But agricultural development is not exclusively determined by the economizing and selling within which they operate."1

It is generally accepted that literacy is a pre-condition for any technological change in agriculture.

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[1]Wharton, C. R. , "Education and Agricultural Growth: The Role of of Education in Early State of Agriculture," in C. A. Anderson and M. J. Brown's edition, Education and Economic Development, Aldine Press, Chicago, 1965, p. 246.

Agricultural Labour Force and Mechanization

From the viewpoint of the agricultural labour force some economists argue that mechanization in India agriculture is not practicable on a wide scale at the present time because it will create more disguised unemployment. At first sight and in the short run this argument may be true because it is obvious that, when you employ machinery on the farm, the people who are working on that farm will become unemployed. But, if we look at it from a long term point of view, this argument is invalid because employment opportunities could be created in other fields, such as production, repairing, operating and selling of agricultural machinery.

On the other hand, however, with the growing population and limited cultivatable land, it is absolutely necessary to substantially raise agricultural productivity. There is no way to increase agricultural productivity unless new technology is introduced into agriculture. Changes in the technique of agricultural production should be accomplished simultaneously with the development of other sectors of the economy in order to provide suitable employment opportunities not only for the existing unemployed agricultural labourers but also for those who may be displaced due to mechanization.

It is true that mechanization will lead to an increase in the volume of unemployment unless there is a major extension of the area under agriculture accompanied by rapid development of the industrial sector. But, eventually by means of developmental planning, there will be a substantial expansion of the non-agricultural sectors of the economy, so that new employment opportunities would be provided. However, there

is no doubt that, if mechanization in Indian agriculture is introduced, there is every likelihood of an increase in the volume of unemployment and underemployment in the country----at least initially. Thus, in M. A. Qureshi's words, "paradoxically, the new agricultural strategy and its unparalleled success in a few years, even as compared to advanced countries, has brought in its wake serious socio-economic problems for the country."[1]

Conclusion

From the foregoing study of "the technological change and mechanization in Indian agriculture." five general conclusions appear:

a. The farmers with larger holdings can more readily adopt new technology than the farmers with smaller holdings.

b. Independent of the size of holdings, farmers who accept one improved practice also accept other similar practices more readily than the farmers who do not employ any improved practice.

c. Farmers would like to employ new technology on their farms but they cannot afford it and those who can afford new technology are often unable to obtain it within a reasonable period of time.

d. Most of the farmers are uneducated and, therefore, they do not know how to make use of new technology.

e. There is a great fear of increasing unemployment and disguised unemployment, at least in the initial stage of the introduction

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[1]Qureshi, M. A., "India's Green Revolution Marches Ahead," India News, The Information Service, Embassy of India, Washington, D. C., August 6, 1971.

of new technology in agriculture.

Thus, it would not be feasible, at present, to fully mechanize Indian agriculture. But it should be done gradually through the introduction of simple and light machines, the extension of irrigation facilities, the reclamation of wastes and weed-infested land, the application of better seeds and an improved variety of manures, and the utilization of new techniques of intensive cultivation along with education facilities, adequate financial assistance to the farmers and better administration.

E) Socio-Economic Patterns

Approximately 75 per cent of the population lives in 600,000 different villages, with nearly 400,000 of these having a population of fewer than 600 people each.[1] A large proportion of this population is unconnected by roads and is cut off from the outside world, particularly in the rainy season. This rural community is highly tradition-bound by social customs, attitudes and the caste system, which have an adverse effect on the economy of India, especially in the agricultural sector.

Social Customs and Attitudes

There are many social customs and attitudes in India which adversely affect the material progress of her economy, for example, the social obligation to incur lavish expenditure on marriages and funerals; the joint family system, which obliges even moderately prosperous people to

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[1]These figures are based on the 1961 Census of India.

share their income with even distant relations;[1] and the severe restrictions on the activities of and opportunities for women, especially in the rural areas.[2] A mere mention of these is sufficient to emphasize the point.

The attitudes toward animals have special importance too. A large proportion of the Indian population object to the killing of animals. Besides its immediate and direct effects on the food supply, this attitude obviously restricts the scope of animal husbandry, severely restricts agricultural operations and obstructs progress in agriculture. An extreme example is that of the Jains.[3] The people who belong to the Jain religion (or caste) will not knowingly take any form of animal life, even that of insects and bacteria. They object to the killing of locusts and to the use of chemicals designed to kill the agents or carriers of cholera, typhoid, malaria and other fatal deseases.

The Hindus' ancient religious attachment to the cow is of special importance. It has recently found embodiment in statutary measures. A Hindu will rarely eat beef or veal, or kill a cow, and, accordingly, will generally resent the killing of any cattle. Legislation has, in recent years, been introduced in a number of Indian States, such as

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[1]The joint family system, by pooling the resources of a group, yields important social and economic benefits in a subsistence or near subsistence economy. Beyond this stage, however, it generally retards economic growth.

[2]The restrictions on the opportunities for and activities of women in many parts of India are, however, more severe than in other underdeveloped countries.

[3]Jain is the name of one of the religions in India.

Uttar Pradesh, Madhya Pradesh and Rajasthan, prohibiting the killing of all kinds of cattle.[1]

The Caste System

There is an enormous number of castes in India. Under the caste system, both the social position and the economic activity of the people depend on the caste into which they are born.[2] Its operation has, in recent years, been declining in extent and intensity, especially in the towns and big cities; however, the system is still powerful in rural areas, where agriculture is the main occupation of the people.

Historically, the caste system, in various ways, served important and often valuable social and political functions. But, for a long time both the system and the attitudes have been very damaging to Indian agriculture because it wastes talent, restricts occupational mobility and retards the dissemination of new ideas and methods.

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[1]Section 48 of the Indian Constitution lays down as one of the directions of policy that the States will take steps for "...prohibiting the slaughter of cows and calves and other milch or draft cattle."

[2]The caste system in India is quite different from the social differentiation and hereditary classes found elsewhere, which are, often and very impressively, also called castes in popular language. The crystallization of differentiated groups into castes, the religious sanction of these differentiations, and, above all, untouchability are features unique to India.

CHAPTER III

THE IMPORTANCE OF AGRICULTURE IN THE ECONOMY OF INDIA

The importance of agriculture in the nation's life and economy is manifested in that it is the main source of income of the people. Agriculture is the backbone of India, and the prosperity of her people depends on the success and well-being of the farmers. Because nearly 48 per cent of India's national income is derived from the agricultural sector, over 70 per cent of the total population is dependent upon agriculture.[1] This, to some extent, indicates agriculture's vital role in the economy of India.

In fact, agriculture is not merely an occupation or business proposition for the people; it is a tradition which has shaped the country's thoughts, outlook and culture. Apart from this, agriculture provides the raw materials needed by the important industries. The five largest industries----textile, jute, sugar, tea and oilseed----depend on agriculture, while railways and other transport agencies get the bulk of their business from the movement of agricultural produce. Moreover, as will be shown later in this Chapter,[2] agriculture provides the bulk of India's exports. Manufactured goods such as jute, textiles, sugar, oilseeds and tea are the most important items in the foreign trade and, hence, account for a

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[1]Shenoy, B. R., Indian Economic Policy, Humanities Press, New York, 1968, p. vi.

[2]See Section-D, "Share of Agricultural Commodities in Indian International Trade," of this Chapter.

amount of India's foreign exchange.

In a rather broad sense, agricultural progress in India is a prerequisite for industrial development. In a dual economy, one of the conditions of industrial expansion is the achievement of a high rate of agricultural production. Rising agricultural productivity supports and sustains industrial development in three important ways. First, it permits agriculture to release part of its labour force for industrial development while meeting the increasing food needs of the non-agricultural sector. Secondly,it raises agricultural incomes, thereby creating the rural purchasing power needed to buy the new industrial goods. The rural savings rising from increased income may then be mobilized, by direct or indirect means, to finance industrial development. And, finally, it enables agriculture to supply the major wage-goods (food) of industrial workers at favourable prices.[1]

The most important ways in which increased agricultural output and productivity contribute to the over-all economic growth can be summarized as follows: (1) In the earlier stages of economic development, expansion of exports of agricultural products may be one of the sources of increasing income and foreign exchange earnings. (2) Agriculture, as the dominant sector of an underdeveloped economy, can contribute to the capital required for overhead investment and expansion of secondary industry. (3) The rising net cash income of the farm population may be important as a

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[1]Nicholls, W. H., "The Place of Agriculture in Economic development," in Agriculture in Economic Development, edited by C. Eicher and L. Witt, McGraw-Hill Book Company, New York, 1964, p. 12.

stimulus to industrial expansion.[1]

This importance of agriculture may be further examined with reference to the following aspects: A) agriculture's share in the national income; B) pattern of livelihood; C) foodgrains; D) share of agricultural commodities in international trade; E) interdependence of agriculture and industry; and F) agriculture's contribution to capital formation.

A) Agriculture's Share in the National Income

As was mentioned earlier, approximately one-half of the national income is derived from agriculture and allied activities, employing nearly three-fourths of the country's labour force. The national income of India for 1964-65 was Rs.200.1 billion as compared to Rs.86.5 billion in 1948-49, showing an increase of 132 per cent (at current prices) over 16 years. (See Table III:1).

As Table III: 1 indicates, fluctuations in the national income were closely related to fluctuations in agricultural production. For example, the net national income of Rs.99 billion in 1951-52 declined in 1952-53 to Rs.98.2 billion. The reason for this decline was that, during the same period, income from the agricultural sector fell from Rs.50.2 billion to Rs.48.8 billion. The net national income declined from Rs.104.8 billion in 1953-54 to Rs.96.1 billion in 1954-55, mainly because there was a decline in income from the agricultural sector from Rs.53.1 billion to Rs.43.5 billion. As these examples indicate, the economy as a whole is closely dependent on the agricultural sector.

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[1]Johnston, B. F. and J. W. Mellor, "The Role of Agriculture in Economic Development," American Economic Review, Vol.51, 1961, pp. 571-72.

TABLE III: 1

National Income by Industrial Origin at Current Prices

Year	Agri-culture	Mining & Mfg. etc.	C.T.C.	Other Services	Net Domestic Products at Factor Cost	Net Income Earned from Abroad	Net National Income at Factor Cost
	a	b	c	d			
1	2	3	4	5	6	7	8
	in billions of Rs.						
1948-49	42.5	14.8	16.0	13.4	86.7	-0.2	86.5
1949-50	44.9	15.0	16.6	13.8	90.3	-0.2	90.1
1950-51	48.9	15.3	16.9	14.4	95.5	-0.2	95.3
First Plan:							
1951-52	50.2	16.8	17.9	15.0	99.9	-0.2	99.7
1952-53	48.1	17.0	17.8	15.4	98.3	-0.1	98.2
1953-54	53.1	17.7	18.0	16.0	104.8	0.0	104.8
1954-55	43.5	18.0	18.1	16.5	96.1	0.0	96.1
1955-56	45.2	18.5	18.8	17.3	99.8	0.0	99.8
Second Plan:							
1956-57	55.2	20.0	19.6	18.2	113.0	+0.1	113.1
1957-58	52.8	21.2	20.7	19.3	114.0	-0.1	113.9

TABLE III:1 (Cont.)

1	2	3	4	5	6	7	8
1958-59	62.4	21.7	21.5	20.6	126.2	-0.2	126.0
1959=60	62.5	23.2	22.3	21.8	129.8	-0.3	129.5
1960-61*	68.9	26.0	23.4	23.6	141.9	-0.5	141.4
Third Plan:							
1961-62	69.6	28.8	24.8	25.5	148.7	-0.7	148.0
1962-63	70.0	30.8	26.5	27.5	154.8	-0.8	154.0
1963-64	81.7	33.3	28.1	29.9	173.0	-0.9	172.1
1964-65	102.5	36.0	29.6	32.9	201.2	-1.1	200.1
Percentage increase or decrease:							
First Plan	-7.6	+20.9	+16.9	+20.1	-----	----	+4.7
Second Plan	+52.4	+40.5	+24.5	+36.4	-----	----	+41.7
III Plan**	+49.0	+38.5	+26.5	+39.4	-----	----	+41.5
ARPA***	+7.9	+9.8	+5.4	+9.2	-----	----	+7.8

Source: Kulkarni, V. G. and D. D. Deshpande, Op.Cit., pp. 4-5.

Notes: a. Includes agriculture and allied field, forestry and fishery. b. Includes mining, factory establishment and small enterprises. c. Commerce, Transportation and Communication. d. Includes profession and liberal arts, government services, domestic services and house property. *Provisional. **First four years only. ***Average Rate Per Annum, from 1950-51 to 1964-65 only.

B) Pattern of Livelihood

It has become almost axiomatic nowadays that a highly developed economy has only a small proportion of its population engaged in agriculture. With regard to this Folke Dovring points out that "practically all the economically less developed countries are predominantly agricultural and all the most highly developed ones have only a small sector of their population engaged in agriculture or depending upon it for their livelihood."[1]

In India, according to the 1961 Census, out of of a total population of 439 million, 298.5 million (68 per cent) depended upon agriculture for their livelihood and the remaining 140.5 million (32 per cent) depended upon non-agricultural professions.[2] (See Table III:2).

In India, agriculture is a way of life. "The people have taken to agriculture as a routine and it has become the part and parcel of their very existence. To a very great extent the Indian cultivator labours not for profit, not for net return, but for subsistence."[3] There is hardly any choice for a cultivator in the area of occupations. As Table III:2 shows, agriculture as an occupation is the main stay of most of the

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[1]Dovring, Folke, "The Share of Agriculture in a Growing Population," Monthly Bulletin of Agricultural Economics and Statistics, Vol.8, August-September, 1959, pp. 1-11.

[2]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1964, p. 157.

[3]Govt. of India, Report of the Royal Commission on Agriculture, Government of India Press, New Delhi, 1953, p. 433.

TABLE III:2

Pattern of Livelihood in India

Group	1951 Census		1961 Census	
	in Millions of People	Per-centage	in Millions of People	Per-centage
1	2	3	4	5
Total Agricultural Population	249.0	69.8	298.5	68.0
Production Other than Agricultural Population	37.7	10.5	49.2	11.2
Commerce	21.3	6.0	28.5	6.5
Transport	5.6	1.6	7.9	1.8
Others	43.0	12.1	54.9	12.5
Totals	361.0	100.0	439.0	100.0

Source: Dayal, Rajeswar, Community Development Program in India, Kitab Mahal, Private Limited, Allahabad, 1966.

India: A Reference Annual, 1964, p.225.

Notes: *Excluding the population of Dadra and Nager Haveli, Diu, Daman and Goa.

families. For millions of persons born in rural districts there is no escape from an agricultural career, while other industries are selective and attract roughly that number of candidates who can be profitably employed. Agriculture starts with too many candidates; neither selection nor rejection is possible----after all, where would the rejected go? Thus, the farmer is forced to remain on the farm without any consideration as to whether it is remunerative or not.

C) Source of Foodgrains

Agriculture has been, and still is, the main source of food supply. Increasing demand for food is of major economic significance in an underdeveloped country for several reasons. First, a high rate of population growth of 1½ to 3 per cent is now a characteristic of most of the underdeveloped nations. This is particularly true in India.[1] Another reason is that the income elasticity of demand for food in countries like India is considerably higher than in more advanced countries----probably in the order of 0.6 or higher in the backward countries vs. 0.2 or 0.3 in advanced countries, such as Western Europe, the United States of America and Canada.[2]

If food supplies fail to expand pari pasu with the growth of production the result is likely to be a substantial rise in food prices

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[1] In India, according to the 1961 Census, population increased by 2.1 per cent per annum (average rate) during 1951-1961. An estimated figure for 1971 shows that during the decade of 1961-1971, population increased by 2.4 per cent per annum (average rate).

[2] Johnston, B. F. and J. W. Mellor, "The Nature of Agriculture's Contributions to Economic Development," Food Research Institute Studies, November 1960, p. 339.

leading to political discontent and pressure on wage rates with consequent adverse effects on industrial profits, investment and economic growth. The inflationary impact of a given percentage increase in food prices is much more severe in an underdeveloped country like India than in a developed country. This is a simple consequence of the dominant position of food as a wage good in low income countries where 50 to 60 per cent of total consumption expenditure is devoted to food, compared with 20 to 30 per cent in developed countries.

In a predominantly agricultural economy like India undergoing transformation under the impact of a planned process of industrialization, the quality and the quantity of foodgrains available assume special importance. It should not be forgotten that the rate at which industrial development and urbanization take place is necessarily preconditioned by the rate of increase in the supplies of marketable surplus of foodgrains. If the food supply is more than sufficient, there exists an agricultural surplus, and labour may be free from the land for employment in manufacturing. Labour supply is divided between the two sectors in a straightforward manner: (1) if there is no agricultural surplus, then all labour remains on the land; and (2) if an agricultural surplus can be generated, a labour force available for employment in manufacturing grows at a rate which is equal to the rate of growth of the agricultural surplus.[1]

A developing economy, with an expanding industrial sector, requires a quantitative and qualitative increase in foodgrain production for feeding her working force. The process of industrialization, buttressed

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[1]Jorgenson, D. W., "The Development of a Dual Economy," Economic Journal, Vol.71, 1961, p. 312.

by an ambitious type of development planning, tends toward investment activities in the sphere of heavy and basic industries. The net result is that a shortage of necessary consumer goods will develop throughout the economy and a food shortage may become quite acute.

Under the pressure of a fast-growing population and general Indian eating habits, this might develop to be much more serious. As previously mentioned, most of the people in India do not eat meat, and therefore, India requires more foodgrains. The increasing population is a basic limiting factor in industrial expansion and increases the importance of foodgrain production. India's population increased from 361 million in 1951 to 439 million in 1961 and estimated figure for 1971 is approximately 540 million. This is an increase of about 78 million people in one decade (1961-71). This additional population is larger than the total population of Great Britain or Western Germany and is nearly four times greater than the population of Canada. This tremendous population increase constitutes a constant pressure operating upon the economy of India which cannot be lightly ignored.

There are a number of reasons for this increase in population---- climatic conditions, marriage at an early age, joint family system and social customs. It is evident that farmers like to have more children to help on the farm. Moreover, especially in the village community, the uneducated people's religious belief is so strong that they refrain from putting family planning into practice.

Tc say this massive population needs a tremendous amount of food is an understatement. India has been under pressure to import foodgrains as it is an underdeveloped country with a backward agricultural sector

not producing sufficient foodgrains to feed her people. Table III:3 shows the distribution of expenditure on imported foodgrains between 1949-50 and 1966-67. To pay for these imported foodgrains, India required to spend vast quantities of funds which are desperately needed for other areas of development.

In spite of 3 million tons of imported foodgrains, the amount of foodgrains available per capita per day was only 17½ ounces. This is below the 25 ounces recommended by the United Nations' nutritionists. The Planning Commission, at the commencement of the Third Plan, reported that nearly 60 per cent of India's population earns much less than the national average of Rs.300.00 per capita.[1] At the same time, nutrition experts reported that, on the average, each individual needed to consume Rs.420.00 worth of food a year to meet the minimum nutritional requirement and to maintain proper health. With regard to the causes of increasing population, Mr. J. De Castro claims that there is a direct correlation between hunger and fertility.[2] Unless there is quantitative and qualitative improvement in foodgrain production, fertility and population planning will not be free from the negative impact of hunger. Therefore, it is imperative that India should develop its agriculture at least to the extent that is necessary to abolish hunger.

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[1]Planning Commission, Draft Outline of the Third Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1961, p. 12.

[2]Castro, J. De, Geography of Hunger, with a forward by Lord Boyd Orr, Gollancz, London, 1952.

TABLE III:3

Imports of Foodgrains

Year	Rice	Wheat	Total
1	2	3	4
	in millions of Rs.		
1949-50	312	712	1,024
1950-51	230	371	501
1951-52	382	1,524	1,906
1952-53	430	818	1,248
1953-54	133	383	516
1954-55	549	131	680
1955-56	47	119	166
1956-57	57	14	NA
1957-58	NA	NA	606
1958-59	408	1,154	1,562
1959-60	163	1,298	1,461
1960-61	224	1,532	1,756
1961-62	187	939	1,126
1962-63	270	1,138	1,406
1963-64	375	1,348	1,723
1964-65	402	2,419	2,821
1965-66	419	2,647	3,066
1966-67*	756	3,852	4,608

Source: Kulkarni, V. G. and D. D. Deshpande, Op. Cit., p. 229.

Notes: NA=Not Available.
*provisional.

D) Share of Agricultural Commodities in Indian International Trade

Expansion of agricultural trade is likely to be one of the most promising means of increasing income and augmenting foreign exchange for a country which is intensifying its efforts to develop.

> "In most of the less developed countries agriculture provides employment for more than one-half of the labour force and it accounts for three-fourths or more of the total foreign exchange earnings. Hence, the economic growth of some developing countries is dependent upon agricultural exports."[1]

Trade in general, and agricultural exports in particular, have been and still are important in these countries where economic development has not been as rapid as in the more advanced countries.

The failure of trade to play a leading role in development can be attributed, in part, to the low rate of increase in the demand for agricultural and other primary products. This slow increase in demand is related to the low income elasticity, the development of substitutes, the use of smaller quantities of raw materials per unit of finished product, and the protection of domestic agriculture in the more advanced countries. However, the net foreign exchange earned by agricultural exports is of considerable importance in the development of underdeveloped countries.

As Table III:4 indicates, India's major exports consist of agricultural products. Between 1950-51 and 1968-69, the percentage share of agricultural products (including little or no processing at all) in the total volume of exports showed an increase for a short period and then

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[1]Johnson, D. C., "Agriculture and Foreign Economic Policy," Journal of Farm Economics, Vol. 46/2, 1964, p. 919.

TABLE III:4

Share of Agricultural Commodities

in the Total Export of India

Year	Agricultural Commodities as % of Total Export	Agri. Content of Exported Manufactures as % of Total Export	Full Value of Exported Manufactures Included in (3) as % of Total Export	(2)+(3) as % of Total Export
1	2	3	4	5
1951-52	43	18	57	61
1952-53	43	19	57	62
1954-55	52	18	48	70
1956-57	50	18	50	68
1958-59	47	20	53	67
1960-61	45	23	55	68
1962-63	45	21	55	66
1964-65	46	24	54	70
1966-67	44	24	56	68
1968-69*	42	27	58	69

Source: Kulkarni, V. G. and D. D. Deshpande, Op. Cit., pp. 224-228.

Sengupta, J. K. and A, Sen, India's Economic Growth:: Process, Problems and Policies, The Post-Graduate Book Mart, Calcutta-9, 1961.

Notes: *Estimated figures.

reverted downward again. The percentage share of manufactures with agricultural content tended to remain stable up to 1956-57 and then started to decline. This indicates that agricultural production and exports play an important role in the economy of India not only as an export resource but also as the raw material for the important industries which are producing export goods.

E) Interdependence of Agriculture and Industry

Economic historians have supplied data which help to analyze the issue of whether the agricultural or industrial sector should be relied upon as the driving force in development. They generally concur that there are no cases of successful development of a major country in which a rise in agricultural productivity did not preceed or accompany industrial development.[1] It becomes more and more apparent that development over the long run is not likely to occur if it is tied to either an agricultural or an industrial foundation. Today it is recognized that there is no basis for doctrinaire statements that development should be launched with either agricultural or industrial expansion; instead, "every economy has an agricultural and a non-agricultural sector, and one of the most important aspects of development is the changing, complex but always intimate relation between the two."[2] Anyway, in the Indian case agriculture seems to be the more logical starting point. No doubt, the

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[1]Kuznets, Simon. Six Lectures on Economic Growth, The Free Press of Glencoe, New York, 1959, pp. 59-60.

[2]Youngson, A. J., Possibilities of Economic Progress, Cambridge University Press, London, 1959, p. 284.

eventual development of India could not be achieved without industrialization.

Thus, the close interdependence of agriculture and industry has always existed in any society, although its patterns have undergone many changes in the course of economic evolution. It is too simple to say that one period of economic history is agricultural and that another is industrial. Even in the so-called 'agricultural stage' the activities of artisans and craftmen cannot be downgraded. Some of these artisans were concentrated in small towns; the farm households supplied a large amount of part-time labour, which was often confused with, and treated as, agricultural labour. On the other hand, in the so-called modern industrial stage, the importance of agriculture as a source of food and raw materials can hardly be ignored.

> "An international comparison of the share of major sectors in national products reveals a negative correlation between the level of income and agriculture's share in it, and a positive correlation between the level of income and the share of non-agricultural commodity production. As the level of per capita increases, the share of agriculture in national product drops and that of industry rises."[1]

Agriculture, as a field of production, may be linked with industry by raw materials. In this respect, agriculture serves as a supply source, while industry serves as a demand source. As was mentioned previously, in India, the agricultural sector provides raw material to the five major industries, namely, jute,sugar, cotton, tea and oilseeds, which play an important role in the development of the Indian economy

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[1]Kunets, Simon, "Quantitative Aspects of Economic Growth of Nations," Economic Development and Cultural Change, Vol. 5, July 1957, pp. 37-38.

by providing employment and contributing a large share to the Indian international balance of payments. (See Table III:5).

F) Agriculture's Contribution to Capital Formation

A secular decline in agriculture and the structural transformation of an economy that characterize the dynamics of growth underscore the importance and the difficulty of capital accumulation in an underdeveloped country. Since India is making a determined effort to achieve economic progress, she faces the formidable requirements of capital to finance the creation and expansion of manufacturing and mining enterprises, of overhead investment in transportation and utilities and of revenue needed for recurrent expenditure for expansion of education and development services. These requirements are certain to outstrip the supply of funds available, particularly in the absence of large earnings from petroleum or mineral exports or through favourable access to foreign capital. The sheer size of the agricultural sector, which is the only major existing economic activity, points out its importance as a source of capital for over all economic growth.

Since there is a scope for rising productivity in agriculture by means that require only moderate capital outlays, it is possible for the agricultural sector to make a net contribution to the capital requirements for infrastructure and for industrial expansion without reducing the low levels of consumption characteristic of the farm population.

An increase in agricultural productivity implies some combination of reduced inputs, reduced agricultural prices or increased farm receipts. Labour, the major input in agriculture in India, is the principal input

TABLE III:5

Exports of Industrial Products

with an Agricultural Commodity as a Raw Material

Year	Cotton Yarn and Cotton Piece Goods	Jute Manufactures	Sugar	Total	% of Total Export
1	2	3	4	5	6
	in millions of Rs				
1950-51	1,338	1,140	2	2,480	39.22
1951-52	537	2,655	4	3,196	43.31
1952-53	666	1,289	44	1,999	34.63
1953-54	685	1,138	1	1,824	34.38
1954-55	636	1,238	4	1,828	31.70
1955-56	608	1,183	10	1,801	30.20
1956-57	650	1,992	10	2,652	43.83
1957-58	623	1,103	23*	1,749	27.51
1958-59	467	1,018	37	1,522	26.21
1959-60	653	1,099	25	1.777	27.79
1960-61	620	1,351	33	2,004	30.35
1961-62	428	1,438	153	2,019	29.70
1962-63	514	1,546	179	2,239	31.38
1963-64	601	1,563	272	2,436	30.71
1964-65	691	1,671	215	2,577	31.57
1965-66	696	1,828	119	2,643	32.65
1966-67**	729	2,355	154	3,238	29.60

Source: Kulkarni, V. G. and D. D. Deshpande, Op. Cit., pp. 226-227.

Notes: *Estimated unofficial figure.
**Provisional.

that will be reduced. Attention has already been given to agriculture's role as a source of manpower. Implicit in the earlier discussion of the need for expanding agricultural production was the important proposition that stable or reduced agricultural prices can facilitate capital accumulation by preventing deterioration of or even improving, the terms of trade on which the industrial sector obtains food and other agricultural products.

In short, in India, where agriculture accounts for some 48 per cent of the total national income, the transition from a level of saving and investment that implies stagnation to one permitting growth cannot be achieved unless agriculture makes a significant net contribution to capital formation in the expanding sectors.

CHAPTER IV

AGRICULTURAL POLICY AND ITS IMPLEMENTATION DURING THE FIRST THREE FIVE YEAR PLANS

The central objective of planning in India was started as initiating a process of development which will raise living standards and open up new opportunities for a richer and more varied life. Economic planning, therefore, had to be viewed as an integral part of a wider process aiming not merely at the development of resources, in a narrow technical sense, but at the development of human facilities and the building up of an institutional frame work adequate to the needs and aspirations of the people.

The economy of India had many storms on all fronts----agriculture, industry and services----that made the period of Nehru's leadership a checkered one. The rise in population, floods and droughts, the long gestation period of the key industries, the underdeveloped agricultural sector, and the pressing need for more and more investments all continue to exert pressures. As a matter of fact, some of the above problems are very difficult to solve in short term planning. Taking this premise into consederation, the Government of India decided to introduce long term planning and, therefore, in March, 1950, the Planning Commission was created with Mr. Jawaharlal Nehru as its Chairman. In July, 1950, the Planning Commission presented the draft outline of the First Five Year Plan.

A) First Five Year Plan : from 1951-52 to 1955-56

The First Five Year Plan was conceived with modest aims. Its main pre-occupations were the prevailing inflationary situation and the existing food shortage. But, in several directions, it set into motion new social and economic processes which helped to raise the nation's standard of living and to give its people opportunities for a better and more varied life. In short, the First Plan primarily aimed at increasing productivity in agriculture and reducing income inequalities.

Policy of Allocations

Originally, the First Plan proposed an outlay of Rs.20.69 billion for the public sector and Rs.13 billion for the private sector,[1] but this figure for the public sector was later raised to Rs.23.78 billion. However, the actual amount spent, in spite of this upgrading, did not exceed the original amount provided. The Planning Commission's review of the First Plan states that there was an expenditure of only Rs.20.12 billion. When price changes were taken into account, the public expenditure during the First Plan period amounted to no more than Rs.19.60 billion, while the private sector accounted for Rs.14.29 billion.[2]

In the First Plan, Rs.3,540 million (14.9 per cent) was provided to the agricultural sector including community development program,

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[1] Detailed figures for the private sector are not available. Therefore, this figure of Rs.13 billion is substracted from the total investment of Rs.33.69 billion in the First Plan.

[2] Ibid.

Rs.6,470 million (27.2 per cent) to irrigation and power, Rs.1,880 million (7.9 per cent) to industry, Rs.5,320 million (24 per cent) to social welfare services and Rs.860 million (3.6 per cent) to the miscelleneous items. (See Columns 2 and 3 of Table IV:1).

As Table IV:1 shows, the agricultural sector received the highest priority in the First Plan. An allocation of Rs.10.01 billion (42.1 per cent) was made for the agricultural sector; however, the actual outlay was 44 per cent.[1] The First Plan's emphasis on agricultural production was fully justified because in the pre-planning period there was a tremendous food shortage in the country. Agricultural production had to be stepped up in order to make India more than self-sufficient in foodgrains and raw material and to enhance the process of industrialization. Thus, the main aim of the First Plan was to develop the agricultural sector and to become self-sufficient in foodgrain production.

Sources of Finance

India's First Plan was mainly a plan of public enterprise for development purposes, and therefore, it naturally involved financial planning and the raising of necessary funds to meet the proposed expenditures.

The original financial allocations of the First Plan revealed that, to finance the outlay of Rs.20.69 billion, the Central and State governments would raise about Rs.12.58 billion through borrowing and budgetary sources. This meant that, after tapping the normal sources (i.e. some

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[1]Agricultural sector includes the community development program and multipurpose irrigation and power projects.

TABLE IV:1

Allocation and Outlay in the First Five Year Plan

Major Heads of Development	Plan Provision*		Outlay	
	in Millions of Rs.	Percent	in Millions of Rs.	Percent
1	2	3	4	5
Agriculture (including Community Development	3,540	14.9	2,990	14.8
Irrigation and Power	6,470	27.2	5,850	29.1
Industries and Mining	1,880	7.9	1,000	5.0
Transportation and Communication	5,710	24.0	5,320	26.4
Social Services	5,320	22.4	4,230	21.0
Miscelleneous	860	3.6	730	3.7
Totals	23,780	100.0	20,120**	100.0

Source: Planning Commission, Review of the First Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1957, pp. 2-3.

Notes: *Including adjustments.
**Figures for the fifth year of the Plan period are based on "revised estimates." When these figures are properly adjusted the actual outlay over the five year period would be about Rs.19.6 billion.

public borrowing, taxation, etc.), there would be a gap of Rs.8.11 billion. To cover this gap, deficit financing of Rs.2.9 billion had to be undertaken. Even then there was a net gap of Rs.5.21 billion which was expected to be bridged by external assistance, additional borrowing and additional deficit financing.

As was stated earlier, the size of the First Plan was increased to Rs.23.78 billion; as a result of which the original gap of Rs.5.21 billion was increased to Rs.8.3 billion. The total budgetary resources available during the First Plan were about Rs.12.77 billion. Thus, budgetary resources came close to the original expectations, which were Rs.12.58 billion. External assistance amounted to Rs.2.03 billion. Consequently, the extent of necessary deficit financing had to exceed the limit of Rs.2.9 billion. The total amount of deficit financing undertaken during the First Plan period came to Rs.4.20 billion. (See Table IV:2).

B) Second Five Year Plan : from 1956-57 to 1960-61

Looking at the basic strategy of India's Second Five Year Plan, we find that there was a marked emphasis on the basic capital goods industries. Nearly 20 per cent of the total outlay was on these industries. Expenditure under large-scale industries, scientific research, and mineral exploration and development was about Rs.600 million during the First Plan; whereas, in the Second Plan, which was geared to initiating a bold program of industrialization, Rs.6,900 million was allocated to industrial development.

Policy of Allocations

The proposed development outlay of the Central and State governments amounted to Rs.48 billion (public sector only) in the Second Plan

TABLE IV:2

Finance for the Public Sector

in the First Five Year Plan

Major Heads of Source	Finance	
	in Billions of Rs.	Percentage of the Total
1	2	3
Taxation and the surplus of the Railways	7.52	38.37
Market borrowing	2.05	10.46
Small savings and unfunded debts	3.04	15.51
Other cpital receipts	0.91	4.64
External assistance	1.88	9.59
Deficit financing	4.20	21.43
Totals	19.60	100.00

Source: Planning Commission, Review of the First FIve Year Plan, Publication Branch, Government of India Press, New Delhi, 1957, pp. 39-47.

as compared with the target figure of Rs.23.78 billion in the First Plan. The private sector accounted for Rs.31 billion,[1] which gives the total outlay of Rs.79 billion for the Second Plan.. But, at the end of the Plan, it was realized that the investment made in the Second Plan was only of Rs.67.5 billion (Rs.36.5 billion for the public sector and Rs.31 billion for the private sector). The distribution of the outlay by major sections of development is shown in Table IV:3. Investment during the two plan periods (1951-52 to 1960-61) totalling Rs.101.1 billion ---- Rs.66.12 billion in the public sector and Rs.34.98 billion in the private sector----increased the average annual investment in the economy from Rs.5 billion at the beginning of the decade to Rs.16 billion at the end.

Expenditure in the agricultural sector (agriculture, power, community development program and irrigation) during the Second Plan amounted to Rs.13.95 billion, i.e. 30.32 per cent of the total investment, as against the provision of Rs.14.81 billion. (See Table IV:3).

Tentatively, in the original draft of the Second Plan, the target for the agricultural sector was fixed at 75 million tons of food production, 5.5 million tons of oilseeds, 9.5 million tons of sugarcane (in terms of gur), 3.2 million bales of cotton and 4.7 million bales of jute. To reach these targets, more emphasis should have been placed on the agricultural sector, but this was not done, which can be seen from Table IV:3.

Even in the objectives of the Second Plan, agriculture is not mentioned at all. It says that the main objectives of the Second Plan are:

TABLE IV:3

Provisions and Expenditures for the Major Heads of Development in the Second Five Year Plan*

Major Heads of Development	Provisions**		Expenditure	
	in Billions of Rs.	Percentage	in Billions of Rs.	Percentage
1	2	3	4	5
Agriculture and Community Development	5.68	11.83	5.30	11.52
Irrigation and Power	9.13	19.00	8.65	18.80
Industry and Mining	8.90	18.54	10.75	23.37
Transportation and Communications	13.85	28.85	13.00	28.26
Social Services	9.45	19.69	7.45	16.20
Miscelleneous	0.99	2.06	0.85	1.85
Totals	48.00	100.00	46.00	100.00

Source: Planning Commission, Second Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1956, p. 35.

Notes: *In the public sector only.
**Includes all adjustments made during the First Five Year Plan period.

1) an increase of 25 per cent in the national income;
2) rapid industrialization with particular emphasis on the development of basic and heavy industries;
3) a large expansion of employment opportunities; and
4) a reduction of inequalities in income and wealth and a more even distribution of economic power.[1]

In view of the increasing demand for food and raw materials, because of increasing population and an expanding industrial sector, the targets provided for in the original draft were found to be somewhat low and inadequate. Therefore, the government, soon after commencement of the Second Plan, revised most of the agricultural production targets upward to meet the expected demand. The revised targets were placed at 80.5 million tons of foodgrain production, 6 million tons of oilseeds, 10.2 million tons of sugarcane (in terms of gur), 5.2 million bales of jute and 4.2 million bales of cotton.[2]

Sources of Finance

The original scheme of financing envisaged by the Planning Commission for the development programs of the public sector amounted to Rs.43 billion, as shown in Table IV:4. As this Table shows, the budgetary funds expected to be raised by the Central and State governments through taxation, borrowing and other receipts amounted to Rs.24 billion. A further Rs.12 billion was expected to come through further domestic deficit financing. In addition, another Rs.8 billion was to be raised externally, bringing the total to Rs.44 billion for the public sector

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[1]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1960, p. 196.

[2]Ibid., pp. 197-198.

TABLE IV:4

Financial Resources (Expected) for the Second Five Year Plan

Items	Income in Billions of Rs.
1	2
Surplus from current revenue:	8.00
At existing (1955-56) rates of taxation	3.50
Additional taxation	4.50
Borrowing from the public:	12.00
Market loans	7.00
Small savings	5.00
Budgetary sources:	4.00
Railway's contribution to the development programs	1.50
Provident funds and other deposits	2.50
Resources should be raised externally:	8.00
Deficit financing:	12.00
Gap: (to be covered by additional measures to raise domestic resources)	4.00
Total	48.00

Source: India: A Reference Annual, 1954, pp. 165-166.

in the Second Plan. This left a balance of Rs.4 billion to be raised. The Planning Commission felt that this gap should ultimately be bridged by raising the domestic quota. They also felt that the only possible sources from which this deficit could be filled were taxation and the profits of public enterprises. However, the realized sources of finance were somewhat different from the original ones. (See Tables IV:4 and IV:5).

C) Third Five Year Plan : from 1961-62 to 1965-66

The Third Five Year Plan has a particular importance because the border conflict with China in 1962 compelled the government of India to declare a state of national emergency and diverted considerable expenditure toward defence. Again in 1965, the border conflict with Pakistan forced India to spend more money on defence. Consequently, the development programs of the Third Plan were retarded.

Policy of Allocations

In view of the rapid growth of population in the 1951-61 decade, the Third Plan laid down the following long term objectives to be achieved by 1975: (1) a cumulative rate of growth as near as possible to 6 per cent per annum so as to secure a more than doubling of the national income (from Rs. 145 billion in 1960-61 to Rs340 billion in 1975-76 at 1960-61 prices) and a 61 per cent increase in per capita income (from Rs.330 in 1960-61 to Rs.530 in 1975-76); (2) the creation of employment outside the agricultural sector for about 46 billion persons in order to reduce the proportion of the population dependent upon agriculture from approximately 70 per cent to at least 60 per cent;

TABLE IV:5

Financial Resources (Realized) for the Second Five Year Plan

Items	Income in Billions of Rs.
1	2
Balance from current revenue (excluding additional taxes).	-0.50
Contribution of the railways on the existing basis.	1.50
Surplus of other public enterprises on the existing basis.	----*
Loans from the public (net).	7.80**
Small savings.	4.00
Provident funds (net).	1.70
Steel equilization fund (net).	0.38
Balance of Miscelleneous capital receipts.	0.22
Additional taxation, (including measures to increase the surplus of public enterprises).	10.50
Budgetary receipts corresponding to external assistance.	10.90@
Deficit financing.	9.48
Total	48.00

Source: Planning Commission, Third Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1961, pp. 191-193.

Notes: *Included in the item, "Balance of miscelleneous capital receipts," above.
**Includes investment by the State Bank of India, out of PL 480 funds.
@Includes investment of PL 480 funds by the Reserve Bank of India in special securities in 1960-61.

and (3) the provision of universal education up to the age of 14 years as envisaged in the constitution.[1]

The total investment in the economy during the Third Plan period was set at Rs.104 billion (63 billion for the public sector and Rs.41 billion for the private sector), a little more than the total expenditure of the first two Plan periods, which was Rs.101 billion.[2] The pattern of investment in the Third Plan, by major areas of development, is shown in Table IV:6.

As this Table shows, more emphasis was given to heavy and basic industries (including power) and social services. For example, Rs.36.32 billion (34.92 per cent) was allocated to heavy industries, minerals and power, whereas the amount to be spent on social services was Rs.16.97 (16.32 per cent). On the other hand, a comparatively smaller amount of Rs.21.10 billion (20.29 per cent) was allocated to the agricultural sector (including the community development program, irrigation and flood control). The amount allocated to transportation and communications was Rs.17.36 (16.69 per cent), comparatively less than the amount of Rs.13. billion (28.26 per cent) in the Second Plan.

The Third Plan provided for an outlay on production programs in the agricultural sector (including the community development program, irrigation and flood control) of approximately Rs.21.10 billion, which is

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[1]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1969, p. 207.

[2]See Tables IV:2 and IV:3, where the outlays which were made in the public sector only are shown, i.e. a total of Rs.67.60 billion, while the private sector amounted to Rs.33.5 billion. Thus, the total amount for the First and Second Plan periods came to Rs.101.1 billion.

TABLE IV:6

Pattern of Investment During the Third Five Year Plan

Major Heads of Development	Public Sector	Private Sector	Total	Percent
1	2	3	4	5
	in billions of Rs.			
Agriculture and allied field	6.60	8.00	14.60	14.04
Irrigation and flood control	6.50	----	6.50	6.25
Power	10.12	0.50	10.62	10.21
Village and small industries	1.50	2.75	4.25	4.09
Large industries and Minerals	15.20	10.50	25.70	24.71
Transportation and communications	14.86	2.50	17.36	16.69
Social services and other programs	6.22	10.75	16.97	16.32
Inventories	2.00	6.00	8.00	7.69
Totals	63.00	41.00	104.00	100.00

Source: India: A Reference Annual, 1969, p. 217.

20.29 per cent of the total investment of the Plan. If power were included in the agricultural sector, then the amount allocated to agriculture would be Rs.33.32 billion (31.94 per cent). In the Second Plan, it was only Rs.13.95 billion (30.32 per cent) and in the First Plan it was Rs.10.01 billion (43.9 per cent).[1]

The Third Plan aimed at stepping up the rate of expansion of agricultural output from the 3 per cent per annum achieved in the Second Plan to 6 per cent per annum.

Sources of Finance

As was pointed out earlier, during the Third Plan period the initial problem for the public sector was of raising the necessary funds amounting to Rs.75 billion. But, as shown in Table IV:7, due to some changes in the Plan structure, the final estimate went up to Rs.86.30 billion; whereas the final figure for expenditure in the Third Plan shows that the total amount spent by the government was Rs.104 billion. This was due to two border conflicts mentioned before. The details of financial resources of the Third Plan are shown in Table IV:7.

D) Neglected Aspects of Agricultural Development in the Three Five Year Plans

In the previous sections, the policy of the government for allocation of funds among different sectors and development programs of the economy was stated.

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[1]See Table IV:1 and IV:3. The figures given in this paragraph are for the public sector only.

TABLE IV:7

Financial Resources for the Third Five Year Plan

Source of Finance	Original Scheme of Financing	Latest Estimates
1	2	3
	in billions of Rs.	
Balance from current revenue at 1960-61 rates of taxation.	5.50	-4.70
Contribution of the railways at 1960-61 prices of fares and freights.	1.50	0.80
Surplus of the public enterprises at 1960-61 prices of products.	4.50	3.95
Loans from the public (net).	8.00	9.15
Small savings.	6.00	5.85
Unfunded debts (net).	2.65	3.40
Compulsory deposits and annuity deposits*	----	1.15
Steel equilization fund (net).	1.05	0.35
Miscelleneous capital receipts (net).	1.70	1.50
Additional taxation (including measures to the to the surplus of public enterprise).	17.10	28.80
Budgetary receipts corresponding to external assistance.	22.00	24.55
Deficit financing.	5.00	11.50
Totals	75.00	86.30

Source: Planning Commission, Fourth Five Year Plan: A Draft Outline, Publication Branch, Government of India Press, New Delhi, 1968, pp. 57-58.

Notes: *These were introduced subsequent to the formulation of the Third Plan.

During the three Plan periods from1951-52 to 1965-66 an investment of Rs.131.12 billion was made.[1] The agriculture and community development program received Rs.15.27 billion (11.65 per cent), irrigation and power received Rs.31.60 billion (24.1 per cent), and industry and mining received Rs.26.60 billion (20.29 per cent). (See Table IV:8).

In 1951, on the eve of the First Plan, the agricultural situation was extremely bad. The question which takes on great significance here is "Should priority be given to agriculture or to industry?" This question, which can always provide lively debate between the exponents of the different ideologies when a development program is being prepared, had particular importance. The echoes of the Bengal famine of 1943 reverberated in the background and only by massive imports could further trouble be held off. This critical situation was reflected in the form of the Plan in which government officials gave agriculture, including irrigation and power, topmost priority.[2]

But there were even more profound reasons behind this decision to concentrate on agriculture. Since the beginning of the 20th century, the relationship between population and agricultural production had been deteriorating.[3] The first sign of this was that India gradually stopped exporting cerials. For example, during the 1880's, India exported an

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[1]This figure is for public sector only.

[2]Planning Commission, First Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1950, p. 44.

[3]Between 1981 and 1921, a sort of demographic "squeeze" took place, the population remaining more or less stationary as a result of serious famines and epidemics. Since 1921, the increase has been continuous and progressive. For more detail see Census of India, paper No.1, 1962.

TABLE IV:8

Allocation and Outlay During the Three Plan Period

Major Heads of Development	First Plan	Second Plan	Third Plan	Total	Per-centage
1	2	3	4	5	6
	in billions of Rs.				
Agriculture (including Community Development Program).	2.99	5.68	6.60	15.27	11.65
Irrigation and Power	5.85	9.13	16.62	31.60	24.10
Industries and Mining	1.00	8.90	16.70	26.60	20.29
Transportation and Communication	5.32	13.85	14.86	34.03	25.95
Social Services	4.23	9.45	6.22	19.90	15.18
Miscelleneous	0.72	0.99	2.00	3.72	2.83
Totals	20.12	48.00	63.00	131.12	100.00

Source: Calculated from Tables IV:1, IV:3 and IV:6 of this Chapter.

Notes: *This Table shows the outlay in the public sector only.

average of 1.2 million tons of foodgrains per year. Between 1905 and 1910, the figure fell to 520,000 tons. Subsequently, India had to import 160,000 tons a year during 1920-25, then 1.2 million tons during 1930-35. In post-war years, the annual imports reached about 3 million tons. At the same time, the land cultivated per head of population began to fall. The figure dropped more than 20 per cent between 1921 and 1951.[1] All the evidence shows that it is necessary to develop the agricultural sector, which provides nearly one-half of the national income.

But, at the end of the First Plan, situation had improved appreciably because weather conditions were favourable during the year 1952-53, after exceptionally grave natural calamities in the beginning of the First Plan and because the efforts by the government and peasants had produced tangible results, thanks to the priority granted to the agricultural sector in the First Plan.

Planning for increased agricultural production was a great success in the First Plan. Agricultural output went up by 18 per cent during this period. However, there were some inefficiencies in the First Plan, mainly due to the fact that systematic and comprehensive crop planning was almost neglected. Under crop planning, targets for various agricultural commodities have to be fixed and it is also necessary to decide in advance what agricultural holdings should be earmarked for each commodity and what two or three crops will be growing on the same holding in a year. The Planning Commission was aware of the importance of crop planning but,

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[1]For more detail, see Census of India, Vol.I, particularly "General Report," pp. 141, 164 and 166, 1951.

due to pre-occupation with inflation and food shortage, it could not make provision for it in the First Plan.

Investment in the Second Plan (Rs.46 billion) was more than twice as large as in the First Plan (Rs.20.12 billion).[1] This increase was accompanied by a reorganization of the objectives, especially towards the industrial sector, with a particular emphasis on heavy industries. The industrial sector accounted for 23.37 per cent of the total investments in the public sector, as against 5 per cent in the First Plan, while expenditure for agriculture (including the community development program) was reduced from 14.88 per cent to 11.52 per cent and that for irrigation and power from 29.1 per cent to 18.8 per cent. Thus, in the Second Plan, the Planning Commission emphasized the industrial sector and gave less importance to the agricultural sector.

The questions that arise here are: was this slackening of pace on the agricultural front justified? Was this the right time to divert the attention from agriculture to heavy industries? In this regard, the Planning Commission gave its opinion that "while the general trends of food production would appear to be upward, it must be admitted that favourable seasons have played a notable part and there are substantial elements of instability despite the evidence of growth of agricultural production."[2] The report of the First Plan drew attention to the very good monsoons of 1953 and 1954.

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[1]These figures are for the public sector only.

[2]Planning Commission, Review of the First Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1956, pp. 100-101.

However, the four main objectives for the Second Plan were:

1) to increase the national income by 25 per cent;
2) to proceed with a rapid industrialization;
3) to create more employment opportunities; and
4) to reduce inequalities in wealth and income."[1]

The agricultural sector was not mentioned in the objectives of the Second Plan at all.

We can conclude from this that the Commission did not give much importance to the agricultural sector in the Second Plan. It seems that the Planning Commission felt at the end of the First Plan that the agricultural sector was now fully developed and there was no need to give much attention to it. What they did not realize, however, was that after a successful operation it is equally important to take care of a patient, since a successful operation does not mean that the patient is, or will be, fully recovered.

Two years later, in 1957-58, adverse climatic conditions resulted in a drop in foodgrain production of nearly 10 per cent. This lesson of 1958 resulted in increasing emphasis on agriculture. To the four primary objectives of the Second Plan, the Third Plan added a fifth: to free the country from food imports by achieving an increase of 32 per cent in foodgrain production.[2] This objective was placed second in the order of priorities, but it remained only an objective. The Planning Commission did not give much importance to the agricultural sector in the Third Plan either. (See Table IV:6).

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[1]Planning Commission, Second Five Year Plan, Publication Branch, Government of India Press, New Delhi, 1955, p. 24.

[2]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, 1969, p. 207.

For a less developed economy, a high rate of increase in agricultural production is one of the principal factors for industrial progress. It is, therefore, necessary to push ahead the agricultural sector as fast as possible. But, this was not done in the planning.[1] The fact remains that the Planning Commission, and also many politicians, including the late Prime Minister Mr. Jawaharlal Nehru, advocated as massive an industrialization program as possible. The percentage of industrial investment increased to 28.8 per cent of the total investment in the Third Plan. The proportion of investment in irrigation and power decreased from 18.8 per cent in the Second Plan to 16.46 per cent in the Third Plan.

From 1951 to 1961, agricultural production rose faster than the population. Statistics are rather unreliable, and certain adjustments must be made for the efforts of climatic conditions, but it is fair to say that, within the decade, population rose 21.5 per cent, whereas production increased 35 to 40 per cent.[2] In the course of Third Plan, however, the favourable trend in agriculture was reversed and production was outstripped by population increase. Hence, one must take into account

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[1] See Tables IV:6 and IV:8.

[2] The trend indicated may seem quite near the truth, but the same does not necessarily apply to actual figures. The National Sample Survey (NSS), an independent statistical organization, has arrived at figures much at variance with those of the Ministry of Agriculture. In its first Survey (Dec. 1952), it estimated that the official figures were some 25 per cent below its own calculations. The NSS Report No.73 for 1958-59 shows a similar discrepancy of 30 per cent. For 1960-61, the NSS gives a figure of 96 million tons as opposed to the official figure of 82 million tons. As suggested by David Hopper of the Rockfeller Foundation in New Delhi, the truth may well lie somewhere between the two.

the natural conditions, which were extremely unfavourable as compared with the 1951-61 decade. Between 1961 and 1966, there were three relatively bad years, one good year, and one----the last----truly catastrophic year.

Many politicians and political economists and the Planning Commission argue that due to two border conflicts, with China in 1961 and with Pakistan in 1965, the Third Plan did not succeeded in achieving its goals because attention was drwn toward the defence program. These emergencies helped India to realize that the mobilization of resources, both for defence and development, should be simultaneously undertaken. Realizing the intensity of these pressures, India, therefore, decided to substantially strengthen her defence. In the first ten years of planning, i.e. from 1951 to 1961, India spent Rs.20.74 billion on defence. The Indo-China border conflict in 1962 led to almost a doubling of the defence expenditure from Rs.3,434 million in 1962-63 to Rs.7,085 million in 1963-64. In fact, the defence budget for the Third Plan amounted to over Rs.28.84 billion. Added to this, the border conflict with Pakistan raised the defence budget from Rs.7.178 billion in 1965-66 to over Rs.9 billion in 1966-67.

Thus, national defence and development should not only go hand in hand but must be viewed as interdependent. This is to say that India has to move forward with her plan of economic development, accompanied by a necessary change in the orientation of development,so that the vital requirements of defence are met. After two border conflicts, India must remodel her development policy with an eye towards defence, build up the industrial base and give proper emphasis to the main elements of productive

power such as oil supplies, transportation, power generation, supplies of basic light metals, food and agricultural raw materials.

Let us look at the costs and consequences of a big defence build-up on the economy of India as she strives toward economic and social development. What is intended here is an objective discussion which will help to give an understanding of the basic issues.

It is a well known fact that a marked rise in the production of defence goods, unlike capital goods for civilian use cannot enlarge the productive capacity of the economy. They are produced not because they satisfy the final demand of the consumers but simply because they fulfill a certain set of military and strategic considerations which are vitally important for the protection of the nation as a whole. This means that, at any point of time, with given resources, the nation is faced with the choice of producing more or less of either defence goods or civilian goods. If there is already full utilization of the resources, then, due to the priority attached to defence production, consumer goods production is bound to suffer.

Hence, it is necessary to tighten the tax burden more effectively and impose an element of forced saving on the community. These two things were done in India during the Third Plan in order to finance the defence production and put an effective check on domestic consumption. This, of course, involved a series of deprivations and sacrifices which were the obvious costs of defence preparedness.

At this stage we may raise an interesting point which if often missed or is not fully stressed. In a country like India, where under-utilization of resources is a common state of affairs, the general presumption

is that it is operating below the optimum limit of productive potential. The main reason for under-utilization of resources in India hinges on inefficiencies in the organization of the economic system and poor administration. These inefficiencies result from market imperfections, price-wage rigidities, lack of mobility of resources, etc.

In conclusion, it can be said that the circumstances surrounding Indian development create doubt about the decisive importance attributed only to the financial provisions. Would agriculture really have progressed much more quickly if it had had the benefit of more capital investment freed by a less hasty industrialization? In other words, could not better results have been obtained even with the distribution of funds between two sectors remaining unchanged?

It seems that two types of error have been made in planning. First, there is a psychological error which has engendered in official circles some relaxing of effort with regard to agriculture since the Second Plan. When the politicians and numerous economists stress the need for rapid industrialization, they seem to misunderstand the initial role of agriculture and they forget the truth demonstrated by nineteenth-century Europe and Japan, that true industrialization can only take root in the round prepared by a relatively high level of agricultural production. This is true particularly in the case of the Indian economy. In Russia also, the agricultural development that continued from the end of the 19th century to the First World War facilitated the preference given by the Soviets to industry.[1]

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[1]Eicher, C. K. and L. Witt, Op. Cit., p. 23.

A second error of appreciation is the lack of realism in studying agricultural problems. For example, according to a statement made by Mr. S. K. Patil, the former Minister of Food and Agriculture, in Parliament in 1960, the imports of American agricultural surplus were temporary and that India would be self-sufficient when, thanks to the Third Plan, production had reached 105 million tons.[1] The experience of the Third Plan did not justify such statements, which made no mention of a possible gap between theoretical and actual achievement.[2]

Other weaknesses also appeared at the executive level. These concerned the administration and operation of organizations responsible for promoting agriculture, in which greater progress could have been achieved without large additional expenditure. For example, the policy regarding large irrigation projects should have been re-examined much earlier. Progress would have been more rapid if minor irrigation works that were simple to execute, inexpensive, and likely to bring immediate results had received maximum encouragement from the start. Another weak point has been the launching of new projects before the completion of the previous ones, which had to be held back often because of lack of money and qualified staff.

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[1] Overseas Hindustan Times, March 31, 1960.

[2] Planning Commission, The Third Five Year Plan: Mid-Term Appraisal, Publication Branch, Government of India Press, New Delhi, 1964, p. 103.

CHAPTER V

POLICY SUGGESTIONS AND CONCLUSIONS

Agricultural development can help the overall development of the Indian economy in several ways: (a) by increasing the gross national product; (b) by supplying the manpower required by other sectors of the economy; and (c) by providing the economic surplus which could constitute the material basis for industrial development.

Increases in agricultural production must be such that they lead to a surplus and thereby initiate investment at a compounded rate which should be well above the rate of increase in population. It is true that in the more advanced stages of economic development the bulk of the surplus required may come from the industrial sector, but, in India, where the economy is predominantly agricultural, a large part of the surplus required for economic development will have to come from agriculture, at least until the stage is reached whereby industry is able to contribute a major portion of the national income.

In most of the underdeveloped economies, where agricultural techniques are still somewhat primitive, the application of new technology often leads to a sustantial and quick increase in agricultural production. Once the entire agricultural sector is structured with a new and improved technology, the development of agricultural could provide a large surplus with relatively little investment and in a comparatively short time. Therefore, in the Indian economy, effective agricultural planning which focuses on agricultural problems in the context of the broader framework that reflects overall development of the nation's total economy is

necessary. The problems of increasing farm production in India certainly are many and complex. The farmers, their needs and their problems must be the focus of all development programs.

Land reform must also be completed swiftly so that both tenants and landowners are free from uncertainity and can concentrate on farm improvement and increased yields. Making maximum use of rural manpower ----to build and maintain irrigation works and to do contour bunding and other soil conservation work----is another essential program to strengthen the rural economy and thereby assure higher yields. A concentrated attack must be made in selected districts in the States which, because of irrigation and assured rainfall, have the highest potential for increased production. All of the programs will require public support and the utmost efficiency in reorganization and administration along with the necessary investment in the agricultural sector.

Looking at the problems as a whole, development of agriculture must take place on many fronts at once. One of the most urgently needed steps is not only to expand irrigation for relieving dependence on the unreliable monsoon rains but to stimulate the maximum and most economical use of irrigation waters. Another is to expand India's farm extension and community development agency, which now reaches slightly more than half of the rural population to cover the entire nation and reach all farmers with a concentrated educational effort for improving farm practices and farm yields. Another essential line of action is to bring within a bullock cart's hauling distance of every village the fertilizers, seeds, implements and other farm supplies essential for improving crop yields. Farm credit must similarly be made readily available to all farmers.

There is also a very great need for better knowledge of existing farming systems in India as a basis for assessing the types of change that are feasible and capable of yielding the greatest returns in specific situation. These detailed and specific studies that are needed will not be of maximum value unless they are framed with as much understanding as possible of the various facts of agricultural development and the interactions between agriculture and non-agriculture in the precess of economic growth. This was not done during the planning period, as shown in Chapter IV, where it is seen that more importance was given to the industrial sector without giving much thought to the agricultural sector.

A) Pattern of Investment

The investment pattern in the First Plan was quite appropriate to the development needs of the economy because 43.9 per cent of the total investment went to the agricultural sector,[1] but in the Second Plan it was reduced to 30.32 per cent. Thus, the Planning Commission immediately diverted its attention to the heavy industries without looking into the future of agriculture.[2] This resulted in a drastic shortage of foodgrains.[3] Therefore, in considering the pattern of investment, it is important to take the whole economy into account and determine a strategy for development accordingly. The pattern of investment in agriculture should not be seen in isolation from the investment pattern in general.

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[1]Because the agricultural secto was extremely bad before planning. The agricultural sector includes the community development program, irrigation and power. See Table IV:1 in Chapter IV.

[2]See Tables IV:1 and IV:3 in Chapter IV.

[3]See Tables I:1 in Chapter I and III:3 in Chapter III.

As was mentioned in Chapter IV, the investments made in the Second and Third Plans were quite unbalanced. That is to say, the Planning Commission gave more importance to the industrial sector than the agricultural sector.[1] The reason for this was that at the end of the First Plan, the Commission assumed that agriculture was fully developed, and therefore, there was no need to give it very much importance. This was a mistake on the part of the Planning Commission. Even though there were some reasons such as unfavourable monsoons for low agricultural production, administrative inefficiencies and very little use being made of new technology as a result of the low investment in agriculture were the more important reasons. Therefore, to strengthen agriculture, the Commission must give weight in terms of investment to the agricultural sector in at least one or two future plans.

Actually, the Fourth Plan was supposed to begin in April, 1966 but it began in April 1969. The reason for this delay was the lack of financial resources. In the beginning, the Plan was based on an investment of Rs.240 billion. But, in the first year of the Plan, the Commission realized that the resources were not available, so it announced that the Fourth Plan would be postponed for three years and would begin April, 1969. To avoid repetition of such failures, it is important that the total assessed resources needed for public and private development programs in agriculture be checked against available funds. At the same time, the annual phases of the agricultural program over the plan period need to be checked to help to ensure that the total annual expenditures

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[1]For more detail, see Tables IV:1, IV:3, IV:6 and IV:8 in Chapter IV.

on input and output conform to the available funds, the annual growth of demand and the related annual investments in other sectors. When these tests have been applied and necessary adjustments made, the pattern of investment for the agricultural sector of the national development plan would be established more satisfactorily.

B) Community Development Program and the Agricultural Sector

The community development program began in 1921 at Shantiniketan.[1] However, it was not until 1951 that the community development program began as an allied field of the agricultural sector under planning. The total amount spent under the community development program during the planning period from 1951-52 to 1965-66 was Rs. 4,904 million, as shown in Table V:1. This Table does not show the expenditure for some of the important aspects of the community development program. For example, provision of financial assistance to farmers is not mentioned at all and the amount allocated for farmers' education is very small. Research shows that education and the economic status of farmers are the most important factors in the community development program, if the goals of the community development program are to be achieved.[2]

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[1] Dayal, Rajeswar, Community Development Program in India, Kitab Mahal Private Limited, Allahabad-3, India, 1966, pp. 15-19.

[2] Rahudkar, W. B., "Communication Pattern and the Acceptance of agricultural Practices," in Selected Readings on Community Development, edited by T. P. S. Chaudhari, National Institute of Community Development, Hyderabad, 1967, pp. 21-35. And N. Patnaik, Adoption of Agricultural Practices in a Peasant Community in Orissa, National Institute of Community Development, Hyderabad, 1967, pp. 89-100.

TABLE V:1

Expenditure in the Community Development Program

Under the Three Plan Period

Major Heads of Expenditure	First Plan	Second Plan	Third Plan
1	2	3	4
	in millions of Rs.		
Block headquarters and mainteinance	105.1	547.6	809.9
Agriculture and animal husbandary	35.5	110.0	303.1
Irrigation and land reclamation	108.3	485.9	586.7
Village industries	21.8	70.1	135.3
Health and rural sanitation	37.9	168.7	231.8
Education	34.4	120.6	140.6
Social education	20.0	101.9	137.9
Communication	51.6	126.1	184.8
Housing	17.3	109.0	116.7
Unclassified	27.9	31.3	28.4
Totals	459.8	1,871.2	2,673.2

Source: India: A Reference Annual, 1969, p. 258.

Notes: Data for Jammu and Kashmir, and Dadra and Nager Haveli are not included here.

The community development program is an important step in the development of the rural peasant economy. In the case of Indian economy, which is highly dependent on agriculture and the bulk of the farming community lives in the rural areas, the community development program can be very effective. As has been mentioned above, in order to make the community development program more effective, education is a primary necessity because if people, especially farmers, are uneducated, then they are not able to understand and implement new agricultural techniques. The same thing is true for the co-operative movement. In short, community development, education and co-operatives must go hand in hand.

Even though the availability of new tools and implements plays an important role in agricultural development, the farmers' competent use and utilization of these tools and implements is of paramount importance. Needless to say, the competent use and utilization of tools, implements and techniques is dependent on the education and training of those involved in agriculture.

Information about new techniques of cultivation, use of fertilizers, and new and improved seeds and implements can be provided by the agricultural research centres, provided that the field of agricultural research is sufficiently developed. This can be done by investing more money and, at the same time, taking an active interest in agricultural research and education. For example, the governments can educate and train the farmers and agricultural students through community development programs and co-operatives and thereby encourage them to make use of new and improved technology.

Under the community development program, the co-operative movement should be strengthened to develop the rural peasant economy. It is no exaggeration to say that the most useful tool in rural development is the co-operative. It can function as an economic system and, at the same time, as a cradle for the development of social attributes essential to the development of a community, such as organizational skills and co-operation. The co-operatives can be of immense help in the physical, the institutional and the social aspects of agricultural development.

For example, agricultural credit societies, which are a part of co-operatives, play an important role in agricultural development by providing financial assistance to the millions of poor farmers. In Helm's words:

> "Agricultural credit is an important apprach to development and progress in the agrarian sector of the economy. Much of its success, however, will depend on the ways in which the farmer can gain access to credit facilities and the degree of supervision of his utilization of the credit."[1]

Even though there are agricultural credit societies, these societies are not enough and they do not have enough funds to provide sufficient financial assistance to the farmers.[2]

Without the financial assistance, the farmer would not be able to obtain the tools and implements he needs. The experience of Japan shows that:

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[1]Helm, F. C., The Economics of Co-operative Enterprises, The Co-operative College, Tanzania, In association with the University of London Press Ltd., 1958, p. 71.

[2]For more detail, see Section-C, "Agricultural Credit," in Chapter I.

> "Appropriate expenditure by the government (on agricultural research, extension, credit and roads) can have spectacular effects on the output of peasants, and that agriculture.....(instead of) acting as a brake on the rest of the economy can be turned into a leader, generating demand for other sectors, and also providing them with capital. But most governments in the same or similar situations have neglected agriculture, with the result that its failure to expand has kept down the rate of growth in other sectors."[1]

C) Land Reform and Co-operative Farming

As was mentioned earlier in Chapter II, the microfarm is one of the impediments to technological change and mechanization in Indian agriculture. This is to say that it is difficult to employ large machines and take advantages of return to scale on very small farms.[2] The problem posed by microfarms can be solved by co-operative farming and land reform. By combining small farms, owned by different farmers, it would be possible to bring about large farms where new technology could be utilized.

In addition to the possibility of utilizing better technology, co-operative farming could provide better capital formation for irrigation, better credit facilities, better tools and better machinery. At the same time, it would prevent the fragmentation and sub-division of land. However, it is important to note that the success of co-operative farming depends on the education and training of the peasants in respect to the nature of co-operative duties and responsibilities.

An alternative to co-operatives, because of the weaknesses inherent in them, is the provision of new technology and services for farmers

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[1] Lewis, W. A., Theory of Economic Growth, George Allen and Unwin Co., London, 1955, p. 279.

[2] See Section-D, "Factors Inhibiting Technological Change and Mechanization in Indian Agriculture," in Chapter II.

through government agencies. For example, the government could establish small units at the village level to provide new machines and services. For each village or for two or three villages together (depending on the size of the villages), the government could establish a centre which would provide technological facilities to the farmers. This type of program may be a very useful and effective instrument in changing the face of the rural peasant economy.

D) Improved Marketing, Transportation and Communication,and Storage Facilities

At the commencement of the Third Plan, Colin Clark pointed out that:

> "The extreme pre-occupation with capital investment has led to the neglect of the other factors in growth and economic development: improvement in education, the development of the legal and institutional framework required for a market economy-----a dependable currency, a banking and credit system.....heavy investment in transportation and communication. These defects blatantly disfigure India's Second Plan (1956-61)."[1]

Marketing

Marketing facilities are very poor in rural India. A number of problems arise when a farmer is about to sell his produce. For example, he cannot get good prices because of middlemen. He has to pay several types of fees in the selling procedure, such as agent's commission and market fees. Sometimes, in the village market, the farmer has to rely on an auctioning process where his produce is auctioned off at the best obtainable price. Usually farmers cannot get good prices because buyers know that the farmers do not have sufficient storage facilities or the ability to wait, and therefore, they will sell their produce for whatever prices they can get.

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[1]Clark, Colin, Growthmanship, London, 1961, p. 28.

Efficient marketing plays an important role in making the best use of what is produced. The marketing system, by removing maladjustments ----regional, seasonal, quantitative, and qualitative----the concomitants of specialization and localization of production, renders invaluable service to the productive process. The remunerativeness for the agricultural sector also depends on the efficiency of the marketing system. Marketing and productive efficiency, thus, go together.

Transportation and Communication

An examination of the three Plans (from 1951-52 to 1965-66) would indicate, transportation and communication were neglected, especially in the Third Plan. For example, in the First Plan, 26.3 per cent of the total outlay was allocated to transportation and communication. In the Second Plan, the corresponding figure was 28.3 per cent, while in the Third Plan, it was reduced to 16.7 per cent.[1] Therefore, transportation and communication remained backward.

To support this argument, R. K. Mukerjee points out that:

> "Communication from the field to the village and from the village to the MANDI are often extremely poor and defective. Bad roads, lanes, and tracks connecting the villages with the markets not only add to the cost of transportation, but also lead to multiplication of small dealers and intermediaries. They also restrict markets by hindering cheap and rapid movement of agricultural produce."[2]

Therefore, transportation and communication facilities must be improved.

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[1] See Tables IV:1, IV:3 and IV:6 in Chapter IV.

[2] Mukerjee, R. K., Economic Problems of Modern India, International Publication Service, New York, 1968, p. 295. MANDI referes to market, the place where farmers sell their produce.

Better communication facilities which would permit broadcasting of day-to-day agricultural prices in regional languages, diffusion of new technology and demonstrating new agricultural techniques through films, could be a very good apprach to developing the Indian agricultural sector. This could be done by establishing a special department which would have branch offices in every district. Each district office would be given the responsibility of providing this information to the farmers through the small Field Units which would demonstrate how to use new technology. The other information, including day-to-day prices and diffusion of new agricultural techniques and technology, would be provided through radio stations in the regional languages. It would also be necessary to have a government building with radio and movie facilities in every village to provide various information to the farmers.

Storage Facilities

The lack of adequate storage facilities is also one of the problems which make marketing difficult. The government of India had a total storage capacity of 2.313 million tons at the end of 1968, of which 1.564 million tons capacity had been transferred to the Food Corporation of India by December, 1968. Another 1,500 tons capacity has been transferred to the Assam State Warehousing Corporation. The remaining capacity available to the government is only 748,000 tons.[1] This shows that the storage facilities are not sufficient for increasing food production.

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[1]Govt. of India, India: A Reference Annual, Publication Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1969, p. 233.

The storage facilities required for agricultural products are of two types: (a) temporary, which are needed before the produce is moved to the market place; and (b) long term, which are needed for uniform distribution of supply according to demand. The damages arising from rain, exposure to dampness and insects lead to great losses and, consequently, must also be considered.

Even if the farmer wants to store his produce in his own house for a short period, he cannot do so because the housing conditions of small farmers are such that they do not provide adequate protection against rain, flood and fire.

E) Irrigation Facility

In most parts of India, the moisture in the land is a limiting factor in raising agricultural productivity. One of the major characteristics of the climate in India is that nine tenths of the annual rainfall occurs during the four months of the year from June to September. As was mentioned in Chapter II, the irrigation facilities in India are inadequate.[1] Only 19 per cent of the total cultivatable land is irrigated.[2]

However, the problem is complicated by the uncertainty of the monsoon seasons. Not only does rainfall vary from region to region, but yearly variations also are common, to such an extent that sometimes the rainfall is so heavy that the fertile part of the land is washed away,

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[1] See Section-D, "Factors Inhibiting Technological Change and Mechanization in Indian Agriculture," in Chapter II.

[2] India: A Reference Annual, Op. Cit., 1969, p. 225.

while at other times it is insufficient even for meagre agricultural purposes.

Many people look at irrigation as a means of protecting crops from drought. This view is true in traditional farming, but the full potentiality of irrigation has to be grasped under a changing technology, especially the increasing use of fertilizers and machines. In this context, irrigation is important for the entire country.

The government should use the full water potential available in the country through a canal system. In some parts of India canal irrigation is not available because this type of irrigation depends on the availability of lake or river water and the level of the land. In such cases, lift irrigation would be very useful. Lift irrigation, with tube-wells or ordinary wells, has some superiority over canal irrigation. For example, with lift irrigation, water is available throughout the year and there is very little, or no, possibility of over-watering, as is quite often true in the case of canal irrigation.

However, in India, proper agricultural planning is necessary in order to have successful irrigation techniques. The basic features of such planning could be suggested as follows:

1) Proper co-ordination between irrigation and agricultural development on a regional basis, backed by adequate research programs. Advanced programing of irrigation needs should not be based on the traditional farming system but should be based on the requirements of modern farming.

2) A revision of irrigation rates on a scientific basis. Proper investigation should be carried out to calculate the marginal

productivity of irrigation under different cropping systems and for different areas.

3) In determining the irrigation system to be used, such as canal or tube-wells, due consideration should be given to the topography of the region, the types of soil, the lag between investment and actual results, the size of investment and the possibilities of economizing capital by using labour.

4) As was mentioned earlier, an extension program should be established to educate and train the farmers and to provide necessary guidance, in relation to available water supply, cultivation practices, intensity of cultivation and application of fertilizers, in order to make the best use of irrigation facilities and new technology.

5) In many areas where canals cannot effectively meet the irrigation needs, a supplementary program of lift-irrigation must be provided.

F) Agricultural Price Policy and Administration

Price instability is one of the major reasons for changes in the content of agricultural production and, thereby, fluctuations in foodgrain production. This, in turn, causes fluctuations in the incomes of the foodgrain-producing farmers.

Tables V:2 and V:3 show the annual average percentage rate of change in the price of foodgrains and cash crops. These price changes apply not only to the harvest price but also to the general price. Again, Table V:3 shows that price fluctuations have occurred every year from 1947-48 to 1959-60. This was due to poor agricultural administration.

TABLE V:2

Average Annual Rate of Change in Price of Foodgrains

Crops	1947-48 to 1950-51	1950-51 to 1954-55	1954-55 to 1959-60	1947-48 to 1959-60
1	2	3	4	5
	per cent			
Rice	+10.3	-6.0	+5.3	+0.4
Jowar	+2.9	-8.9	+13.7	+0.5
Bajra	+1.0	-6.5	+12.8	+0.7
Mize	+9.3	-10.2	+10.1	-0.9
Ragi	+1.7	-2.9	+12.4	+2.0
Weat	-1.6	-2.9	-8.1	+6.3
Barley	+4.7	-11.4	+16.8	+0.2
Total Cereals:	+5.9	-7.4	+8.9	+4.0
Gram	+9.6	-14.0	+16.0	+0.9
Tur or Arthar	+20.7	-12.6	+5.6	+2.8
Other Pulses	+5.5	10.4	+7.2	-2.6
Total Pulses:	+10.0	-12.6	+19.3	+1.0
Total of Cereals and Pulses:	+6.7	-8.4	+9.7	+0.03

Source: John, P. V., Op. Cit., p. 200.

TABLE V:3

Average Annual Rate of Change in Price of Cash Crops

Crops	1947-48 to 1950-51	1950-51 to 1954-55	1954-55 to 1959-60	1947-48 to 1959-60
1	2	3	4	5
	per cent			
Groundnut	+2.0	+11.4	+8.2	+2.3
Castor Seed	+6.6	-16.6	+27.1	-0.7
Sesamum	+7.8	-10.7	+10.0	+0.8
Rape & Mustard	+11.3	-11.4	+12.3	-1.3
Lin Seed	+25.6	-13.7	+15.2	+0.06
Raw Sugar	+11.4	-10.2	+7.6	-2.7
Potatoes	-3.3	-0.8	-3.7	-1.8
Tobacco	-7.4	-3.6	-2.3	-3.5
Black Pepper	-0.4	-17.0	-7.7	-16.8
Chili	+4.9	+0.8	+4.8	+5.4
Tea	+0.8	+11.6	-1.3	+4.9
Coffee	-8.1	-2.1	+21.1	+4.3
Rubber	+13.4	-5.5	+11.6	+14.9
Cotton	-0.8	+11.7	+8.1	+3.2
Jute	+19.2	-10.4	+20.0	-0.8
All Cash Crops	+7.6	-8.2	-2.3	-4.7

Source: John, P. V., Op. Cit., p. 206.

The interesting thing about the price changes is that, in many parts of the country, prices fluctuate within the region and also within the same foodgrain and agricultural product. For example, as B. R. Shenoy points out in his evaluation of the three Five Year Plans:

> "Wheat was distributed through fair-price shops at Rs.8.50 per 20 kg. in Ahmedabad though its free market price ranged much higher, from Rs.21.65 to Rs.26.25 per 20 kg. depending upon the quality. Simultaneously, the price of cattle feed for 20 kg. was Rs.13.50 for Chuni, Rs.10.60 for Cotton-seed and Rs.8.65 for Guar. It was, therefore, worthwhile to tap the supplies of wheat from fair-price shops for mixing with cattle feed, through collusion with the operators of these shops, through ghost cards or other devices."[1]

He again points out that:

> "Until recently, the price of wheat[2] distributed through fair-price shops in Ahmedabad and elsewhere in Gujarat was Rs.42.50 per quintal, each family being given 15 kg. per week, or 15 ozs. per head, per day. The free-market prices of wheat ranged much higher, from Rs.68.25 to Rs.131.25 per quintal, depending upon quality. The fair-price shops also sell rice at Rs.75 per quintal, the quantities sold per family being 2 kg. per week, or 2 ozs. per head, per day. Rice is not distributed through fair-price shops and its black market price is of the order of Rs.120. per quintal, as against the controlled wholesale price of Rs.96."3

Thus, there are two types of market prices prevailing for agricultural products, especially for foodgrains, in rural India: (a) the official market price; and (b) the free-market price or the black market price. These prices have produced an economic chaos which consequently affects agricultural production.

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[1]Shenoy, B. R., Op. Cit., p. 99.

[2]The weat, distributed through the fair-price shops, was U.S. wheat imported under PL 480; the landed cost of this wheat was much lower than the prices charged at fair-price shops.

[3]Shenoy, B. R., Op. Cit., p. 101.

The above analysis reveals that there is a very great need for a better price policy in Indian agriculture in order to increase agricultural production. It also reveals that there are limitations to the working of the price mechanism in India as far as foodgrain production is concerned. The objectives of a price policy, with regard to foodgrains, have often been described as the maintenance of price levels fair to the producer as well as to the consumer and the avoidance of undue fluctuations over time.

Keeping all of the above aspects of price fluctuation and agricultural production in mind, it seems that the broad objectives of a price policy for increased foodgrain production should be:

1) maintenance of general price stability in the face of an increasing public outlay to bring about economic development.
2) maintenance of parity between foodgrain and non-foodgrain prices and between agricultural and non-agricultural prices in the interests of the vital agricultural output programs.

Attempt may be made to stabilize prices through buffer stocks, open market operations and the guarantee of flows in order to protect the farmer from seasonal fluctuations. These fluctuations may be overcome by guaranteed prices or guaranteed incomes. The necessary incentives for larger production have to be preserved. It is suggested, therefore, that the government should set up and promote the necessary co-operatives and state agencies for the purchase and sale of foodgrains at appropriate stages so as to stregnthen its power to influence prices and to prevent anti-social activities, such as hoarding and profiteering, from getting the upper hand.

In view of the large programs of agricultural development, the need for better agricultural administration is very important. Poor administration in the agricultural sector of India creates a number of problems which hinder agricultural production. For example, as was mentioned earlier, the main reason for the low amount of fertilizer application in Indian agriculture is the non-availability of adequate supplies at the right time.[1] In other words, due to poor administration, the farmers cannot get enough supplies of fertilizers when they are really needed.

In the case of agricultural prices, the situation is even worse. As is stated in the previous section, the prices of foodgrains and other agricultural products vary tremendously, no matter how the government tries to control them. It has been shown that even under a system of controlled prices and fair-price shops people can buy and sell at the black market price, which is always higher than the controlled or fair prices. This is because of poor administration by corrupt government officials, as Professor B. R. Shenoy pointed out in his book in which he analyzed the three Five Year Plans.[2]

Thus, agricultural administration needs to be improved. To do this, a series of proposals were made before the beginning of the Third Plan by the Agricultural Administration Committee. These were not adequately implemented, as was previously stated. Therefore, the strengthening of staff at various levels, such as an anti-corruption department, the revision of terms and conditions of employment, and the expansion of

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[1]See Section-D, "Factors Inhibiting Technological Change and Mechanization in Indian Agriculture," in Chapter II.

[2]Shenoy, B. R., Op. Cit., pp. 283-286.

facilities for training, education and research should be matters of first priority.

G) Conclusion

As the foregoing study has indicated, the First Five Year Plan took the development of agriculture as a pre-condition for viable industrial development. However, the Second and Third Plans (from 1956-57 to 1965-66) shifted the emphasis strongly toward industrial development, especially the development of heavy industries. The relative emphasis on agricultural development was significantly reduced.

This decline of investment in agriculture led to food shortages in the country. In terms of what was needed to provide a big push, the Second Plan was relatively limited. Although in the Third Plan the financial resources were relatively greater than in the Second Plan, they were not properly allocated so as to meet the requirements of agriculture. Thus, the lack of resources and, at the same time, inadequate investment for agriculture were major causes of the failure of the Second and Third Plans.

To solve these problems, first, a proper balance between the growth of manufacturing and of agriculture is essential for the development of the Indian economy as a whole. Second, India, as an underdeveloped country, should strive to increase her agricultural output, since the more she can do so, the less she needs to rely on the import of agricultural products including foodgrains.

Moreover, there is every reason to believe that India can earn very high returns on investments through the discovery, propagation, and financing of land reclamation and in developing agricultural methods through

agricultural research and extension services such as the community development program and co-operatives. Thus, the agricultural sector in India can make a major contribution to the overall economic development. It seems that, if India is to achieve her economic aspirations, she will be well advised to develop the agricultural sector first and, then turn gradually toward industrialization.

It is likely that India will be faced with a lagging agriculture unless she introduces new and improved technology extensively. Even though this would create further social adaptation problems, as discussed in Chapter II, it is essential for increasing foodgrain production and, when accompanied by an improvement in administration, would lead to continuous high agricultural productivity. The achievement of this would require: first, the reduction of the abundant public sector appropriations to free investment funds for the agricultural sector and, second, the suitable amendment of the legislation which is crippling the business of agricultural credit by obstructing the flow of credit and capital into farm finance and impairing the credit-worthiness of farmers.

In addition to the adoption of new technology and the improvement in administration, there is also a need for close collaboration among agricultural scientists in order to identify and seek solutions to newly emerging agricultural development problems.

BIBLIOGRAPHY

Books

Agrawal, G. D., Economic Problems of Indian Agriculture. Delhi: Vikas Publications, 1969.

Anderson, C. A. and M. J. Browman, Education and Economic Development. Chicago: Aldine Press, 1965.

Castro, J. De, Geography of Hunger. London: Gollancz, 1952.

Clark, Colin, The Economics of Irrigation. New York: Pergamon Press, 1967.

Das-Gupta, K. K., Planning and Economic Growth. London: George Allen and Unwin Ltd., 1965

Dayal, R., Community Development Program in India. Allahabad: Kitab Mahal, Private Limited, 1966.

Eicher, C. and L. Witt, Agriculture in Economic Development. New York: McGraw-Hill Book Company, 1964.

Helm, F. C., The Economics of Co-operative Enterprise. London: University of London Press, 1968.

Higgins, B., Economic Development: Principles, Problems and Policies. New York: W. W. Norton and Co., 1959.

Hunter, G., The Administration of Agricultural Development. London: Oxford University Press, 1970.

Hutton, J. H., Castes in India: Its Nature, Functions and Origins. New York: 1963.

Kulkarni, V. G. and D. D. Deshpande, Statistical Outline of Indian Economy. Bombay: Vora & Co., Publishers Pvt. Ltd., 1968.

Kuznets, S., Six Lectures on Economic Growth. New York: The Free Press of Glencoe, 1959.

Lewis, W. A., Theory of Economic Growth. London: George Allen and Unwin Co., 1955.

Naidu, V. T., Farm Credit and Co-operatives in India. Bombay: Vora & Co., Publishers Pvt. Ltd., 1968.

Schultz, T. W., Economic Growth and Agriculture. Toronto: McGraw-Hill Book Company, 1968.

Shenoy, B. R., Indian Economic Policy. New York: Humanities Press, 1968.

_____., Indian Planning and Economic Development. Bomaby: Asia Publishing House, 1966.

Southworth, H. M. and B. F. Johnston, Agricultural Development and Economic Growth. New York: Cornell University Press, 1968.

Venkateswarlu, T., Agriculture in Indian Economic Planning. Alberta: M. A. Thesis, University of Alberta, 1967.

Youngson, A. J., Possibilities of Economic Progress. London: Cambriedge University Press, 1959.

Articles and Periodicals

Abbott, J. C., "The Role of Marketing in the Development of Backward Agricultural Economics," Journal of Farm Economics, Vol. 44 (May 1962), 349-362.

Backer, G. S., "Investment in Human Capital: A Theoretical Analysis," Journal of Political Economy, Vol. 70 (Oct. 1962), 4-49.

Bawden, D. L., "A Look at the Future of Agricultural Economics," Journal of Farm Economics, Vol. 47 (1965), 1510-1514.

Blood, D. M., "The Impact of Transportation Rate Structure on the Movement of Agricultural Commodities," Journal of Farm Economics, Vol. 46 (1964), 398-409.

Bottomley, A., "The Structure of Interest Rates in Underdeveloped Rural Areas," Journal of Farm Economics, Vol. 45 (May 1963), 313-322.

Cassel, J., "Social and Cultural Implication of Food and Food Habits," American Journal of Public Health, Vol. 47 (Jan.1957), 734-740.

Coombs, P. H., "Education's Role in the Developing Nations," Saturday Review, Vol. 46 (Aug. 17, 1963), 29-30.

Dovring, F., "The Share of Agriculture in a Growing Population," Monthly Bulletin of Agricultural Economics and Statistics, Vol.8 (Aug.-Sept. 1959), 125-132.

Enke, Stephen. "Economic Development with Unlimited Supply of Labour," Oxford University Papers, Vol. 14 (June 1962), 152-172,

Galbraith, J. K., "Conditions for Economic Change in Underdeveloped Countries," Journal of Farm Economics, Vol. 33 (Nov. 1951), 689-696.

Johnson, D. C., "Agriculture and Foreign Economic Policy," Journal of Farm Economics, Vol. 46 (1964), 915-929.

Johnston, B. F. and J. W. Mellor, "The Nature of Agriculture's Contribution to Economic Development," Food Research Institute Studies, (Nov. 1960), 335-356.

_____., "The Role of Agriculture in Economic Development," American Economic Review, Vol. 51 (1951), 566-593.

Jorgenson, D. W., "The Development of a Dual Economy," Economic Journal, Vol. 71 (1961), 309-334.

Kapur, G. P., "Prices and Production Trends in Agriculture," Indian Economic Journal, Vol. 11 (April-March 1964), 444-456.

Krueger, A. O., "Interrelationship Between Industry and Agriculture in a Dual Economy," Indian Economic Journal, Vol.10 (july 1962), 1-13.

Kuznets, S., "Quantitative Aspects of Economic Growth of Nations," Economic Development and Cultural Change, Vol. 5 (July 1957), 1-110.

Long, E. J., "The Economic Basis of Land Reform in Underdeveloped Economies," Land Economics, Vol.37 (1961), 113-123).

Martin, L. R., "Some Marketing Problems in Pakistan and India," Journal of Farm Economics, Vol. 41 (Dec. 1959), 1323-1326.

McPherson, W. W., "Role of Agriculture Trade in Economic Development: with discussion by J. Moore," Journal of Farm Economics, Vol. 48 (May 1966), 354-368.

Muzumdar, D., "Size of Farm and Productivity: A Problem of Indian Peasant Agriculture," Economica, Vol. 32 (1965), 161-173.

Nicholls, W. H., "An Agricultural Surplus as a Factor in Economic Development," Journal of Political Economy, Vol. 71 (Feb. 1963), 1-29.

Ohkawa, K., "Significant Change in Japanese Agriculture Since 1945," Journal of Farm Economics, Vol. 43 (Dec. 1961), 1103-1108.

Raj, K. N., "Employment and Underemployment in the Indian Economy," Economic Development and Cultural Change, Vol. 7 (April 1959), 258-278.

Ulrey, I. W., "Problems and Issues in Transportation Policy and Implications for Agriculture," Journal of Farm Economics, Vol.46 (1964), 1281-1289.

Public Documents

Chaudhari, T. P. S., Selected Readings on Community Development, Hyderabad: National Institute of Community Development, 1967.

Government of India, India: A Reference Annual. New Delhi: Publication Division, Ministry of Information and Broadcasting, Govt. of India, (All Year Books from 1954 to 1970).

_____., Report of the Royal Commission on Agriculture. New Delhi: Publication Branch, Government of India Press, 1953.

_____., Agricultural Labour Enquiry. New Delhi: Ministry of Labour, Government of India, 1965.

_____., Facts About India. New Delhi: Publication Division, Ministry of Information and Broadcasting, Govt. of India, 1967.

Lewis, W. A., Report on Industrialization and the Gold Coast. Accra: Government of Gold Coast, 1953.

Planning Commission, The Draft Outline of the First Five Year Plan. New Delhi: Government of India Press, 1950.

_____., Second Five Year Plan. New Delhi: Government of India Press, 1956.

_____., Review of the First Five Year Plan. New Delhi: Government of India Press, 1957.

_____., Towards a Self-relient Economy: India's Third Five Year Plan. New Delhi: Government of India Press, 1961.

_____., The Third Five Year Plan. New Delhi: Government of India Press, 1961.

_____., Fourth Five Year Plan: 1969-74. New Delhi: Government of India Press, 1969.